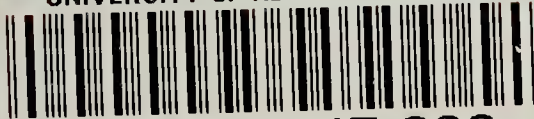


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Vol 44, #1

March 1986

BLUE JAY

The *Blue Jay*, founded in 1942 by Isabel M. Priestly, is a journal of natural history and conservation for Saskatchewan and adjacent regions. It is published quarterly by the Saskatchewan Natural History Society, Box 1784, Saskatoon, Saskatchewan. S7K 3S1. CN ISSN 0006-5099.

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COVER: White-tailed Jack Rabbit. Wayne Lynch

BLUE JAY

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SCREECH-OWL INFORMATION WANTED

WANTED: Sightings and data on Screech-Owls. All information is desirable, no matter how little (from out of province contributors, too). Please give habitat information including proximity to farms, valley bottom habitat or slopes, or other. Also note types of vocalisations (trill, descending call or “whinny”, hesitant call, duets).

The current range includes the Souris River, and the Assiniboine and Qu’Appelle rivers and Wascana Creek. Other areas in the south need to be checked.

Attempts will be made to run another Screech-Owl survey this March/April. For more information, please contact:

Chris Adam, 2636 Argyle Street, Regina, Saskatchewan, S4S 0K1, (306) 584-9564 (day or night).

SNHS NATURE TOURS 1986

April 11-13	Cypress Hills - Sage Grouse Dance Trip (\$150)
May 9-13	Pelee & Rondeau, Ontario (\$395 from Windsor)
June 5-8	Cypress Hills & Pakowki Lake (\$195 from Saskatoon)
June 13-18	Churchill Arctic Birding and Beluga Whale (\$395)
June 13-15	Churchill Mini Tour, Manitoba (\$130)
June 21-26	Cambridge Bay, NWT Arctic Birding Tour (\$590 est. incl. meals)
June 27 - July 1	Hudson Bay, Saskatchewan Botany Tour (Contact Jim Jowsey, RR#2, Saltcoats, Sask. S0A 3R0 for further information)
August 9	Grey Owl Cabin Boat Tour, Prince Albert National Park (\$45 + hotel)
August	Extreme northern Saskatchewan Lodge (cost unknown)
October 4	Whooping Crane Tour, Saskatoon (\$65)

TOURS usually include leadership, accommodation, local transportation but not train/air fare. For further information about these tours write to SNHS TOURS, c/o **Stan Shadick, 3F - 1800 Main Street, Saskatoon, Saskatchewan. S7H 4B3** The registration deadline for most tours is 2 months prior to departure.

BILL RICHARDS: IN LOVING MEMORY



Bill Richards

Bill Richards loved Saskatchewan, this often harsh land to which he and his family emigrated from South Wales when he was eight years old. Except for a few years just before and during World War II, he lived his entire adult life here. Most of that time he worked outdoors, first on the farm, later as a "maintenance of way man" for the CNR. He could say feelingly with Robert Service, "Talk of your cold! through the parkas' fold it stabbed like a driven nail;" and he knew the fierceness of the prairie winds and the scorching heat of summer. But he preferred to contemplate the other side of Saskatchewan: miles of grass and wheat billowing in the wind; the play of light and shadow on the hills; the sudden burst of spring; the multitude of wild things —

plants, birds, animals; the wooded banks of the Saskatchewan River, a riot of September gold.

Whenever Bill and Florence had a free day, they headed out in their car, a bountiful lunch and thermoses of good hot tea in a picnic hamper, ready to explore yet another road, cross another ferry, search for another Ferruginous Hawk nest. And very often they were part of a larger group, the Saskatoon Archaeological Society, the Saskatoon or the Saskatchewan Natural History Societies, or more recently the Golden Eagles, that happy fraternity of retirees who, rain or shine, spend every Thursday afield, often in these past two years with Bill as their leader.

I think that one could honestly say of Bill that the last decades of his life were the happiest and most creative. One could summarize his life story simply by saying that he grew from strength to strength. Reaching manhood during the Great Depression, Bill had to leave Abermure rural school after completing his Grade 10. In the years before the war, like so many other young Canadians, he rode the freights, picking up jobs whenever and wherever he could. He worked on farms and in a store in southern Ontario.

When the war broke out, Bill wanted to join the Army, but despite repeated attempts to get into the Postal Corps, he was refused on the grounds that he had a bad eye. He subsequently trained as a mechanic, and in Montreal he found work in a propellor factory. There he met Florence Tibbits, a girl from Quebec's Eastern Townships. They were married in 1943.

After the war, Florence and Bill returned to the West and Bill began his career with the CNR. They lived for the first ten years in Wiseton and Dinsmore where their two girls Gail and Fern were born.

In 1956 the Richards moved to Saskatoon, a move that profoundly changed their lives. Bill became an active member of several organizations (natural history, archaeology, stamp collectors), and continued to develop a wide range of hobbies that included the collection of postmarks, old postcards, stamps, and Indian artifacts; photography; botany; bird-watching; gardening; Saskatchewan history; and, most recently, collecting, identifying and mounting butterflies and moths. Yet despite the range of his interests, Bill was no mere dilettante. His knowledge of the postal history of Saskatchewan, for instance, was unsurpassed. Almost unfailingly he could identify any weed or flower brought to his attention, and when he couldn't he was humble

enough to contact his good friend, botanist John Hudson, who would settle the matter. He read widely in the history of the Saskatchewan Indian and his impressive collection of arrowheads, scrapers, and other artifacts attests both to his keen eye and his knowledge of the time and places where he would most likely make finds.

By nature a rather shy, self-effacing man, Bill developed a host of friends, drawn to him by his wit, wisdom, and modesty. I doubt whether he ever fully realized how gifted he was. He had an amazingly retentive memory; you couldn't lose him anywhere in central Saskatchewan; he never forgot a trail, or a road, or a farmstead, even a culvert. He could stand on a promontory in the Coteau Hills south of Elrose; in the Thickwood Hills west of Prince Albert; or in his beloved Eagle Hills south of North Battleford ... and tell all of us, grouped around him, the names of the distant villages on the horizon, together with the date of their founding, their ethnic mix, and any other information we'd care to ask! Bill loved books and enjoyed good music; he had an excellent singing voice, the product of his Welsh ancestry, no doubt. A great raconteur, he had a gift for imitating accents as he regaled his listeners with stories from his days on the farm and with the railroad. Florence and the girls remember him as a kindly, concerned father, a devoted husband, a family man proud of his six grandchildren, all boys.

Bill's health failed in recent years, but stoic that he was, he never complained. Carrying out his doctor's orders unquestioningly, he continued until this past week to get out into the country as often as he could, to bowl, and to pursue his many hobbies. The memory of Bill Richards is etched indelibly in the minds of those who knew and loved him. — *J. Frank Roy*, 1702 Sommerfeld Avenue, Saskatoon, Saskatchewan. S7H 2S8

GHOST MOTH IN SPIDER WEB AT THE PAS, MANITOBA

WALTER KRIVDA, Box 864, The Pas, Manitoba. R9A 1K8

We are accustomed to see small moths, flies and wasps caught in a spider's web but it was a surprise to find a moth as large and heavy as a ghost moth in a web. There are six species of ghost moths in Manitoba. This is the large *Sthenopis quadriguttatus*. I am indebted for the specimen of the ghost moth (now in my collection) and for this observation to Philip Reader of Reader's Lake.

The moth was found in a web with its attendant spider, on a waist high shrub, in a gravel pit about 12 mi. north of The Pas. The area borders on a *Sphagnum* bog. It is possible that this ghost moth is one of three species which inhabit acid bogs. It is said the larva feeds at the roots of trees and alders underground for several years before pupating and emerging as an adult. Two species of alder occur here.

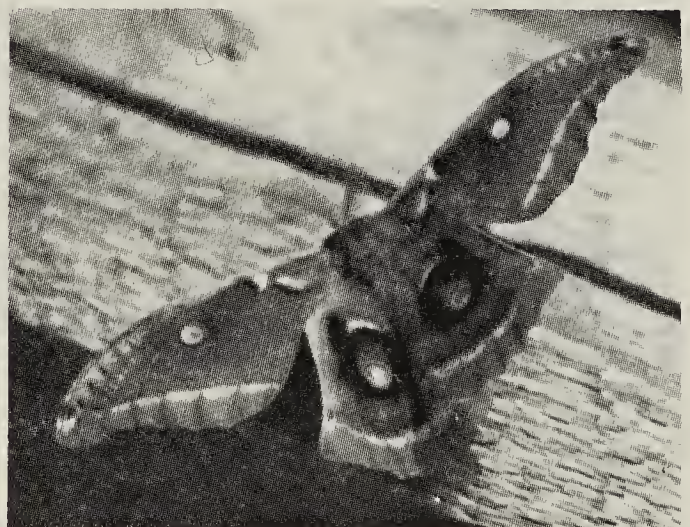
The spider held the moth in its web. When the moth was removed from the web, it fell to the ground, so that moth and spider were briefly separated. Very quickly the spider found its prey again and pounced on it. The left hind wing is mostly missing. The remaining three are in reasonable condition. The spider silk windings were around the whole moth. There are two small puncture holes in the abdomen just below the thorax, made by the fang bites of the spider.

The moth was moribund when found by Reader. The action of the poison must be rapid as the entire specimen still looks very fresh considering its ordeal. The abdomen is rather black in the dry, preserved specimen. This is a strange colour for

a dry specimen in this species. Over 100 specimens in the writer's collection fail to show this, most remain flesh coloured. Even a specimen taken in 1949 has kept its colour well. The discoloration may be due to the spider venom. The spider was unfortunately lost in the grass, so that the species responsible for the attack is unknown.

POLYPHEMUS AT LA RONGE

This picture was taken at La Ronge, Saskatchewan in July 1982. The timber that it is sitting upon is 4" wide, to give an idea of its size. — Myron Barton, R.R. #5, Site 16, Box 51, Prince Albert, Saskatchewan. S6V 5R3



EDITOR'S NOTE: The moth is a Polyphemus Silk Moth (*Antheraea polyphemus*). It has been collected previously at La Ronge, which is the farthest north that it has so far been recorded in central Saskatchewan. — R.R. Hooper

44th ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT — 1985

Compiled by MARY I. HOUSTON, 863 University Drive, Saskatoon,
Saskatchewan. S7N 0J8

Seventy-five bird counts were received this year — the greatest number ever, seven more than the previous high of 68 in 1984.

Most important are the continuing regular count reports which give a long-term picture of the winter bird life in these areas. It is also gratifying to see counts from new areas, and we certainly hope they will be repeated.

Commendable cooperation by a group feeding birds at and near Kamsack, coordinated by Isabel Ritchie, produced a list of 1068 individuals of 17 species.

The only new species added to the all-

time list for Count Day, was a Great Blue Heron seen at Fort Walsh. We can usually count on something different from this area! A new species was added to the Additional List — a Field Sparrow seen at Saskatoon. A red phase Eastern Screech-Owl on the Yorkton count replaces the unidentified screech-owl on the full list. It is confirmed by a (later) photograph taken by Warren Hjertaas. Last year's screech-owl seen at Fort Walsh was unidentified as to species. The Fox Sparrow, reported at Moose Jaw on Count Day, changed its status on the all-time list from Additional to Count Day category. This brings the Count Day total to 141, with 7 Additional Species seen during Count Period but not on Count Day. In



Evening Grosbeak

Fred Lahrman

1985, 71 species were seen on Count Day, with 11 additional species reported during the period for a total of 82. The record high was 84 in 1981. This year's total is second highest.

Black-billed Magpies were reported most frequently (71 localities). Pine Grosbeaks (48), Evening Grosbeaks (45), Hairy Woodpeckers (52) and Downy Woodpeckers (49) were up in number of localities cited. On the other hand Gray Partridges (36) and Snowy Owls (28) were noticeably down. Rosy Finches were seen in two localities only, and in neither case on the day of the count. Confusing finches (Purple? House?) were reported from Endeavour. An incredible 3043 Horned Larks were seen at Govenlock, and although reported on about the usual number of counts, were nowhere else in that quantity.

Two reporters from southern Saskatchewan remarked on the decrease in the population of small birds, particularly House Sparrows, and wondered whether this was an after effect of grasshopper spraying.

Squaw Rapids' 34 species was the highest for Count Day. Fort Walsh and Saskatoon tied for second with 32 each. Fort Walsh, however, added six extra species during count period, while Saskatoon added only two.

After the list of participants from the 75 localities, and the map, Table 1 gives the Coverage and the Weather; Table 2 gives species reported from more than three locations and gives numbers of each species seen in each locality on Count Day, with numbers of additional species during Count Period indicated with a + sign. Table 3 gives numbers and locations of species seen in three or fewer locations. Table 4 gives numbers and locations of the birds unidentified as to species.

Count Areas and Participants

- Names of compilers in *italics*
1. ARDATH-OUTLOOK. *Alan R. Smith.*
 2. ASSINIBOIA. Ed Bearss, Gordon Brunt, John G. Burgeson, A. Duxbury, Gordon Forsythe, *Cecil T. Hayward*, Wilf Prentice, Lorne Yeo.
 3. BANGOR. George Hilton, *Jean Hilton.*
 4. BIGGAR. Roger Assailly, Don Renaud, Wayne Renaud, Robert Wapple, *Guy Wapple*, Gordon Webber.
 5. BIG GULLY CREEK. *Wayne Harris*, Sheila Lamont.
 6. BIRCH HILLS. Moe Maraschel, *Don Weidl.*
 7. BRIGHTWATER RESERVOIR. Dan Neves, *Alan R. Smith.*
 8. BROADVIEW. *Dave J. Chaskavich.*
 9. BROMHEAD. *Carol Bjorklund*, Lorne Bjorklund.
 10. CLEMENCEAU. *Donald F. Hooper.*
 11. CROOKED LAKE. *Don Weidl*, Tony Weidl.
 12. DALMENY. *Loyd Sperling.*
 13. DILKE. *Margaret Belcher.*
 14. DUCK MOUNTAIN. *Dale Hjertaas*, Paule Hjertaas.
 15. DUVAL. Wayne Harris, Laurel Hendry, Neal Hendry, Sheila Lamont, Iain Richardson, *Lloyd S. Saul*, Victor Tucker.
 16. EASTEND. *Henri Lebastard.*
 17. ENDEAVOUR. *Norman Harris.*
 18. FIR RIVER ROAD. *Donald F. Hooper.*
 19. FORT QU'APPELLE. Del Cairns, Russ Cairns, Ethel Cockwill, Peggy Cole, Bernard DeVries, Doreen Evans, Doug Evans, Selma Hiebert, *Ronald Hooper*, Alice Laing, Lois Lamontagne, Don McDougal, Allan Mlazgar, Jean Mlazgar, Raymond Mlazgar, Enola Rak, Doreen Rowell, Lorne Rowell, Bill Smith, Eileen Smith, Dorothy Williams.
 20. FORT WALSH. Wayne Harris, Sheila Lamont, Wilkes Parsonage, *Guy Wapple*, Robert Wapple.

21. GARDINER DAM. Wayne Harris, Sheila Lamont, *Guy Wapple*, Robert Wapple.
22. GLAMIS-WISETON. *Grev L. Jones*.
23. GOODSOIL. *Catherine Morton*, David Morton, Richard Morton.
24. GOOD SPIRIT LAKE. *Bill Anaka*, Joyce Anaka.
25. GOVENLOCK. Wayne Harris, Sheila Lamont, Guy Wapple, Robert Wapple.
26. GRAND CENTRE-PIERCELAND. Bill Kirwin, *Frank Roy*, Ryan Roy.
27. GUERNSEY. *Muriel Carlson*.
28. HERBERT. Terry Toews, *Don Weidl*.
29. HUDSON BAY. R. Beaulieu, Albert Bennett, Joyce Hayes, Les Hayes, *Donald Hooper*.
30. HUMBOLDT. *Ed Brockmeyer*, Dwayne Saretsky.
31. INDIAN HEAD. Cec and Betty Ashmore, Peter and Isobel Barrett, Coral and Margot Beaulieu, *Vic Beaulieu*, Hazel Buglass, Eric, Mavis and Roger Gray, Jim and Joan Halford, Don Hayward, Linda Hill, Gordon Howe, Betty and Roy McIver, Rose and Roy McLaughlin, Dora Nichols, Doris Pals, Steven, Tammy and Tim Reihl, Joan and Lorne Scott, Gretie and Reg Scott, Fred Skinner, Joyce Skinner, Mary Skinner, Chas. and Ruby Thompson, Gordon and Ann Willerth, Garth and Barbara Willoughby.
32. KAMSACK. Mable Buceuk, Fred Erhart, Metro Rosowsky, Penny Rezansoff, *Isabel Ritchie*, Irene Shindler, Tannis Strokoff.
33. KENASTON. JoAnn Beckie, *Lawrence Beckie*, Lori Beckie, Margaret Beckie.
34. KINDERSLEY. *Jean Harris*, Tim Harris.
35. KINDERSLEY. *Gerry Essar*, Michael Essar.
36. KUTAWAGAN LAKE. Wayne Harris, Lloyd Saul.
37. LAKE DIEFENBAKER (Qu'Appelle Dam). *Glenn O. Honig*.
38. LA RONGE. *Jim Paul*.
39. LAST MOUNTAIN LAKE. Wayne Harris, Sheila Lamont.
40. LEADER. *Daisy D. Meyers*.
41. LITTLE BEAR LAKE. Bob Ackerman, Julie Jensen, *Ron Jensen*.
42. LIVELONG. *Sarah Pavka*.
43. LOON LAKE. Alf Davis, Frank Scott, *Penny Scott*.
44. LOVE-TORCH RIVER. *Bert Dalziel*, Duke Dalziel, Joan Dalziel, Ed Dixon, Betty Donovan, Bruce Donovan, Pearl French, Mildred Long, Bill Matthews, Lynn Matthews, Allen Tatlow.
45. LUSELAND. *Kim Finley*, Estelle Martfeld, Travis Martfeld.
46. MAIDSTONE BRIDGE. Wayne Harris, Sheila Lamont, Tom Lamont.
47. MARSDEN. *Florence Chase*.
48. MELFORT. Bud Allen, Evelyn Allen, Genevieve Belliveau, Meghan Curry, *Philip Curry*, Glenn Galloway, Frieda Markland.
49. MOOSE JAW. Brodie and Mac Aldred, Edith Bell, John Docherty, Carl Ellis, Doug Francis, Alan, Arthur, Edward, Hartley and Lawrence Fredeen, Edith, John and Pat Kern, Cy



Trumpeter Swan at Squaw Rapids power-channel 24 December 1986

Wayne C. Harris

- Knight, *Leith Knight*, Connie and Hugh McIntyre, Doug Neil, Darryl Owens, Brean Peele, Richard and Wilma Pickering, Dave Pyle, Gavina Reekie, Arie and Henry Van Dorland, Sheina Wait.
50. NAICAM. Alan Jensen, Lavawn Jensen, *Ron Jensen*.
 51. NIPAWIN. Bert Dalziel, *Bruce Donovan*.
 52. NIPAWIN. Inge Christiansen, *Joyce Christiansen*, Ruth Christiansen.
 53. PIKE LAKE. Benji, Chris and Jessica Escott, *Mary Gilliland*, Bob Godwin, Bernie Gollop, Kathy Meeres, Stan Shadick, Charlie Simpson, Jim Wedgwood, Lois Wooding.
 54. PINE CREE REGIONAL PARK. Christopher Donovan, *James Donovan*.
 55. PRINCE ALBERT. John Burt, *Pam Burt*.
 56. PRINCE ALBERT NATIONAL PARK. Nancy Alexander, Doug and Marilyn Anions, Susan Carr, Tim Haughian, *Ann Landry*, Bradley Muir, Derek Petersen, Josee Poirier, Marlis Pollock, Debra Stacey, Merv Syroteuk.
 57. RAYMORE. *Wayne Harris*, Sheila Lamont.
 58. REGINA. Chris Adam, Jessie Bailey, Martin Bailey, Gaetane Baraby, Laurent Bazin, Margaret Belcher, Tom Beveridge, Frank Brazier, Carol and Lorne Bjorklund, Eric Cooke, Renald Daoust, Bob and Sandra Ewart, Sheallagh Fitzgerald, Greg Kraetzig, *Robert Kreba*, Wee Lee, Christine MacDonald, John MacDonald, Ron Myers, Mariela Paez, Gillian and Trevor Richardson, Tom Riffel, Janie Wilhelm, Pierre Wilhelm.
 59. ROSCOMMON DISTRICT (Kelvington). Chester Sloan, *Dianne Sloan*, Marguerite Sloan.
 60. ROUND LAKE. *Doug Francis*.
 61. ST WALBURG. *Nigel Caulkett*.
 62. SASKATOON. Betty and Bill Albritton, Juhachi, Kango, Mika and Rika Asai, Bob and Joyce Besant, Eveline Boudreau, Ron Bremner, Donald Carlson, Muriel Carlson, Paul and Vi Coutu, Eric Densem, Anne Dzus, Chris Escott, Colleen Gerwing, Mary Gilliland, Bernard Gollop, John Hanbridge, Ramona Harms, *Mary and Stuart Houston*, Dick Kerbes, Louise Klaassen, Donna Malcolm, Don and Jo McRobbie, Doris Montalbetti, Dan Neves, Jim and Pat O'Neil, Evelyn Paterson, Don Perkins, John Polson, Vicki Root, Charles Simpson, Jim Smart, Phil Taylor, Bruce, Dale, Doug and Ron Tomlinson, Lena Vella, Lee Wood, Lois Wooding, Kelwin Wylie.
 63. SCOTT. Sandra Pederson, *Guy Wapple*, Robert Wapple.
 64. SKULL CREEK. *Jim Bennetto*, Tim Bennetto, Marjorie Mann, Robert Mann.
 65. SOMME. Stan Back, Les Baker, Edwin Billeter, Sharon Birch, David Black, Wesley Black, Florence Chase, Eldon Hooper, *Donald Hooper*, Margaret Hooper.
 66. SPRING VALLEY. Allan Bogdan, *Flossie Bogdan*, Larry Bogdan, Nick Bogdan, Dean Goian.
 67. SQUAW RAPIDS. *Wayne Harris*, Sheila Lamont, Wayne Renaud, Guy Wapple, Gordon Webber.
 68. TISDALE. Kristy Morgan, *Susan Morgan*.
 69. TISDALE. *Joyce Mohr*.
 70. WEYBURN. Leo Belanger, *Ray Belanger*, Greg Bobbitt, Dick Gutfriend, Cy Marcotte, Nick Postey, Stewart Stairmand, Joe Weisgerber.
 71. WHITE BEAR. *Sig Jordheim*.
 72. WHITE BEAR LAKE. *D. G. Bobbitt*.
 73. WHITEBEECH. Ida Wotherspoon, *Lindsay Wotherspoon*.
 74. WOLSELEY SOUTH. *Dale Chay*, J. Donald Hayward, Frank Rokosh.
 75. YORKTON. Bill and Joyce Anaka, Joe Bergerman, Samuel Bergerman, Dale and Paule Hjertaas, Warren Hjertaas, Greg Hodgson, Isabel Lawson, Abbie St. Rose.

LOCATIONS OF COUNTS

1. ARDATH-OUTLOOK

2. ASSINIBOIA

3. BANGOR

4. BIGGAR

5. BIG GULLY CREEK

6. BIRCH HILLS

7. BRIGHTWATER RESERVOIR

8. BROADVIEW

9. BROMHEAD

10. CLEMENCEAU

11. CROOKED LAKE

12. DALMENY

13. DILKE

14. DUCK MOUNTAIN

15. DUVAL

16. EASTEND

17. ENDEAVOUR

18. FIR RIVER ROAD

19. FORT QU'APPELLE

20. FORT WALSH

21. GARDINER DAM

22. GLAMIS-WISETON

23. GOODSOIL

24. GOOD SPIRIT LAKE

25. GOVENLOCK
26. GRAND CENTRE-PIERCELAND

27. GUERNSEY

28. HERBERT

29. HUDSON BAY

30. HUMBOLDT

31. INDIAN HEAD

32. KAMSACK

33. KENASTON

34. KINDERSLEY

35. KINDERSLEY

36. KUTAWAGAN LAKE

37. LAKE DIEFENBAKER

38. LA RONGE

39. LAST MOUNTAIN LAKE

40. LEADER

41. LITTLE BEAR LAKE

42. LIVELONG

43. LOON LAKE

44. LOVE-TORCH RIVER

45. LUSELAND

46. MAIDSTONE BRIDGE

47. MARSDEN

48. MELFORT

49. MOOSE JAW

50. NAICAM
51. NIPAWIN

52. NIPAWIN

53. PIKE LAKE

54. PINE CREE REGIONAL PARK

55. PRINCE ALBERT

56. PRINCE ALBERT NATIONAL PARK

57. RAYMORE

58. REGINA

59. ROSCOMMON DISTRICT (Kelvington)

60. ROUND LAKE

61. ST. WALBURG

62. SASKATOON

63. SCOTT

64. SKULL CREEK

65. SOMME

66. SPRING VALLEY

67. SQUAW RAPIDS

68. TISDALE

69. TISDALE

70. WEYBURN

71. WHITE BEAR

72. WHITE BEAR LAKE

73. WHITEBEECH

74. WOLSELEY SOUTH

75. YORKTON

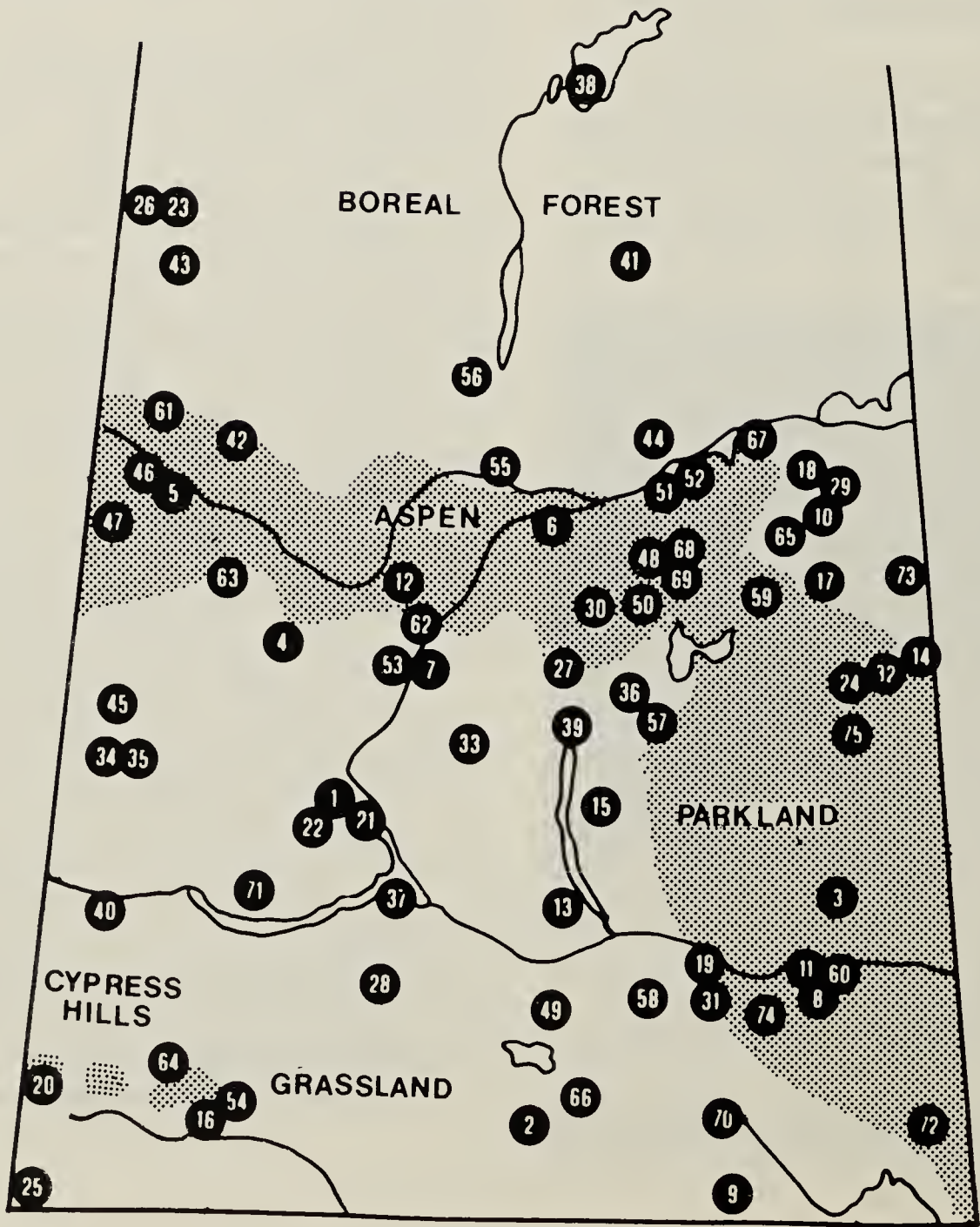


Table 1. COUNT COVERAGE AND WEATHER CONDITIONS

LOCALITY	COVERAGE AND CONDITIONS	KILOMETRES BY VEHICLE	KILOMETRES ON FOOT OR SKIS	HOURS BY VEHICLE	HOURS ON FOOT OR SKIS	HOURS WATCHING FEEDERS OR OWLING	TEMPERATURE MAXIMUM	TEMPERATURE MINIMUM	WIND MAXIMUM	WIND MINIMUM	SNOW MAXIMUM	SNOW MINIMUM	SKY CONDITIONS
ARDATH-OUTLOOK		105	5	3.5	3		-10	-15	10	0	15	5	overcast
ASSINIBOIA		61		2			-4	-10	10	5	12.5		partly cloudy
BANGOR		250		3.5		2	-15	-25	40	30	7	5	overcast,light snow
BIGGAR		187	14	11.5	6		-11	-15	40	20	25	0	cloudy,light snow
BIG GULLY CREEK		152	19	5	7		-8	-17	48	8	20	5	clear
BIRCH HILLS		140	1.5	5.5	1	1.5	-15	-15	18	13	15	5	overcast,clearing
BRIGHTWATER		110	2	5	3		-10	-20	15	0	20	0	cloudy
BROADVIEW		87	3.5	2.5	2		-6	-8	20	15	20	5	mostly to partly cloudy
BROMHEAD		360	2	12	0.5	3	-6	-8	100	60	13		overcast
CLEMENCEAU		50	3	1	1		-20	-23	6	4	30	27	clear
CROOKED LAKE		107		4.5		0.5	-3	-2	50	40	20	5	overcast, light snow
DALMENY			17.5		6.5		-10	-12	40	30	30	0	partly to mostly cloudy
DILKE		134	6	4	2.5		-8	-17	15	10	10	0	partly to mostly cloudy
DUCK MOUNTAIN		109	6	5	3				10	0	35	20	mostly clear,clouding
DUVAL		288	10	10	3.5		-7	-11	17	0	14	0	partly to mostly cloudy
EASTEND		30	2	3	2		-3	-6	20	5	1	0	mostly clear
ENDEAVOUR		5	8	1	6		-4	-18	30	20	29	24	mostly to partly cloudy
FIR RIVER ROAD		48	1	2	0.5		-23	-25	0		35	25	clear
FORT QU'APPELLE		275		12		6	3	-10	40	20	6	4	overcast
FORT WALSH		114	18	8	18.5		2	-1	120	10	50	20	cloudy,light rain
GARDINER DAM		300	17.5	13.5	8.5		2	-8	20	10	40	20	overcast,fog
GLAMIS-WISETON		45	4	2.5	1.5		-5	-8	35	5	20	10	overcast,flurries,clearing
GOODSOIL		75		2		6	0	-2	30	20	12	6	overcast,rain & snow
GOOD SPIRIT LAKE		104	4	5	2	1	2	1	25	15	20	10	overcast,light snow
GOVENLOCK		144	26	12.5	10		2	0	32	3	8	5	clear,clouding
GRAND CENTRE		107	2	4.5	2.5		-8	-10	11	0	28	20	overcast
GUERNSEY		6		1			-14		20				overcast
HERBERT		155		5			-3	-4	12	9	30	10	partly cloudy
HUDSON BAY			1		1	8	-20	-23	6	4	30	27	partly cloudy
HUMBOLDT		40		3.5		6	-2	-5	60	30	10	8	mostly cloudy
INDIAN HEAD		145	12	9.5	3	25	-10	-12	10	0	10	4	partly cloudy
KAMSACK							-4	-9	5		30	27	
KENASTON		40	1	3	0.5		-8	-9	5	0	25		clear,clouding
KINDERSLEY		10		2							20	10	
KINDERSLEY		88	2	7.5	1.5		-7	-9	15	5	16	10	partly cloudy
KUTAWAGAN LAKE		192	5	8	2		-7	-13	48	16	15	10	clear,clouding,clearing
LAKE DIEFENBAKER		15	3	0.5	1		-7	-7	20	15	15	5	overcast
LA RONGE		82	8	5		0.5	-11	-15	42	28	30	15	partly cloudy,snow
LAST MOUNTAIN LAKE							-5	-15	64	40	15	10	overcast,some snow
LEADER		25	4	2	2		-6	-20	4	2	35	25	mostly cloudy,light snow
LITTLE BEAR LAKE		42	1	1.5	1.5		-25	-30	0		30	15	clear
LIVELONG			5				8	-2	0				clear
LOON LAKE						6							
LOVE-TORCH RIVER		155	2	7	1	7	-10	-20	5	0	30	20	clear
LUSLAND		118	18	2	5	0.5	-16	-18	30	10	25	5	overcast,light snow
MAIDSTONE BRIDGE		162	13	8	6		-8	-19	32	16	12	10	mostly clear
MARSDEN						1	-21	-23	6	5			
MELFORT		45	2	3	2	2	-20	-25	20	15	30	20	clear
MOOSE JAW		113	18	5.5	16	2	-5	-7	90	7	25	8	overcast,heavy to light snow
NAICAM		16	4	3	3		-15	-16	40	30	10	2	mostly cloudy
NIPAWIN		50	15	4	3	1	0	-5	40	30	20	15	
NIPAWIN		4	2.5	0.5	1	1.5	-8	-12	10		30	20	overcast,clearing
PIKE LAKE		152	38.5	16	15		-9.5	-21	26	14.5	10	0	partly cloudy
PINE CREE PARK		20	6	1	3.5		5	0	25	20	40	30	mostly clear
PRINCE ALBERT		20		0.5		7	-15	-20	15	10	30	10	overcast
PANP		145	22	6.5	12	1	-6	-23	8	3	20	15	overcast,light snow
RAYMORE		264	13	8	4	1	-8	-16	128	8	25	20	overcast,snow
REGINA		489	34.5	23.5	17		0	-12	35	20	20	7	overcast,light snow
ROSCOMMON		7		0.5		8.5	-5		50	40	22	20	overcast,heavy to light snow
ROUND LAKE		100	2	6.5	1	3	-12	-17	10		30	15	cloudy,clearing
ST WALBURG		120	5	5	3		0	-5	60	30	40	20	overcast,light to heavy snow
SASKATOON		567	93	52	50.5	0.5	-1	-9	52	22	4	0	cloudy,snow flurries
SCOTT		189	7	7	3.5		-10	-14	20	0	40	20	mostly cloudy
SKULL CREEK		20	10	2	4		3	-2	8	0	50	10	mostly cloudy
SOMME		193	6	9	2	20	5	-2	35	25	30	27	partly cloudy
SPRING VALLEY		78	4.5	3	2		-3	-14	8		36		overcast,light snow
SQUAW RAPIDS		80	38	12	12		-21	-33	40	2	15	10	partly cloudy
TISDALE						2	-18						overcast,moderate snow
TISDALE		30		2		30	0	-20	40	30	12	10	moderate snow
WEYBURN		265	9	12	4	0.5	6	4	7	4	10	6	partly cloudy,clearing
WHITE BEAR		18	6	0.5	2	0.1	-18		25	5	32	16	overcast,clearing
WHITE BEAR LAKE		152	14	4	4.5		-12	-20	35	15	15	1	clear,clouding
WHITEBEECH		20		1		6	-18	-20	5	0	25	20	clear
WOLSELEY SOUTH		80	1	2.5	0.5	0.5	-8	-9	10	5	20	18	overcast,light snow
YORKTON		108		8			-1		25	5	20	10	overcast

Table 2-1. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
A plus sign indicates a high count for a species seen during count period but not on count day

SPECIES	LOCALITY & DATE										
	ARDATH - OUTLOOK December 20	ASSINIBOIA January 04	BANGOR December 26	BIGGAR December 28	BIG GULLY CREEK January 05	BIRCH HILLS December 23	BRIGHTWATER RESERVOIR December 27	BROADVIEW December 29	BROMHEAD December 30	CLEMENCEAU December 31	CROOKED LAKE December 26
CANADA GOOSE											
MALLARD											
COMMON GOLDENEYE											
BALD EAGLE				+1							
NORTHERN GOSHAWK								1			
GOLDEN EAGLE									+1		
MERLIN				2			1				
GRAY PARTRIDGE	5	98		6	+1				18		
RING-NECKED PHEASANT		2							1		
RUFFED GROUSE				2	2						
SHARP-TAILED GROUSE	4	16		50	3			1	12		2
ROCK DOVE	94			179	6	85	40	7			
GREAT HORNED OWL		4	1	2		1	1	1	1		
SNOWY OWL						1			2		
SHORT-EARED OWL									1		
DOWNY WOODPECKER			2	1	1	4		+1			1
HAIRY WOODPECKER	1		2	2	2	5	1	+1		1	
THREE-TOED WOODPECKER										1	
BLACK-BACKED WOODPECKER					1						
PILEATED WOODPECKER					+1					1	
HORNED LARK				16					380		
GRAY JAY					1						
BLUE JAY				1	1	2		3			
BLACK-BILLED MAGPIE	22	18	2	77	12	42	17	17	7	+1	8
COMMON RAVEN			18	1	16	6				4	
BLACK-CAPPED CHICKADEE	3		12	17	29	44	4	13		2	9
BOREAL CHICKADEE					7					5	
RED-BREASTED NUTHATCH					3						
WHITE-BREASTED NUTHATCH								4		1	
GOLDEN-CROWNED KINGLET					1						
AMERICAN ROBIN											2
BOHEMIAN WAXWING	105	10	25	5	3	3		1			24
CEDAR WAXWING											
NORTHERN SHRIKE				2	1						
EUROPEAN STARLING											
AMERICAN TREE SPARROW											
DARK-EYED JUNCO (S-c)											
SNOW BUNTING	1		200	713	1012	312	60	30	714	1	120
RUSTY BLACKBIRD				2			2				
PINE GROSBEAK	13		15	6		6	52	4			39
WHITE-WINGED CROSSBILL				12	27	+5					
COMMON REDPOLL			18	155	35	1	9	2	25		23
HOARY REDPOLL			2	1	36				3		
EVENING GROSBEAK			23	5	7	39		45			
HOUSE SPARROW	260	200		696	255	95	10	96	31	8	
NO. SPECIES TABLES 3 & 4	1	0	0	1	3	1	1	0	1	0	0
NO. COUNT DAY SPECIES	11	7	12	23	23	16	11	14	13	9	9
NO. COUNT PERIOD SPECIES	11	7	12	24	25	17	11	16	14	10	9
NO. COUNT DAY INDIVIDUALS	527	348	320	2001	1504	647	240	225	1196	24	228

Table 2-2. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
A plus sign indicates a high count for a species seen during count period but not on count day

DALMENY December 30	DILKE December 29	DUCK MOUNTAIN December 19	DUVAL December 29	EASTEND December 30	ENDEAVOUR December 25	FIR RIVER ROAD January 01	FORT QU'APPELLE December 21	FORT WALSH December 18	GARDINER DAM December 20	GLAMIS - WISETON December 27	LOCALITY & DATE SPECIES
				1							CANADA GOOSE
							68	5	342		MALLARD
							1		12		COMMON GOLDENEYE
							+1	3	1		BALD EAGLE
		1			+1			2			NORTHERN GOSHAWK
				1				3			GOLDEN EAGLE
											MERLIN
			12				+13	+10	12	21	GRAY PARTRIDGE
				6			+1	3			RING-NECKED PHEASANT
					3			2			RUFFED GROUSE
	11		21		6		12	11	14		SHARP-TAILED GROUSE
20	15	13	24				19	2	92	44	ROCK DOVE
2	3		4				+1	2	1	1	GREAT HORNED OWL
				1	1		+1	+1	1	2	SNOWY OWL
			1				+1				SHORT-EARED OWL
		2		2	1		4	4	1		DOWNY WOODPECKER
1	+1	4	1	3	3		3	2	2		HAIRY WOODPECKER
						1		2			THREE-TOED WOODPECKER
					+1						BLACK-BACKED WOODPECKER
					1						PILEATED WOODPECKER
	+59			5				27	35	2	HORNED LARK
		2			5						GRAY JAY
2	1	4			+1	1	5	2			BLUE JAY
12	25	10	54	30	5		15	235	94	3	BLACK-BILLED MAGPIE
		41			30	3		1			COMMON RAVEN
3	3	26	5	4	12		46	82	6		BLACK-CAPPED CHICKADEE
		6			+3						BOREAL CHICKADEE
							2	12			RED-BREASTED NUTHATCH
		1				1	5				WHITE-BREASTED NUTHATCH
								1			GOLDEN-CROWNED KINGLET
							26				AMERICAN ROBIN
+9			53	14			258	20	1		BOHEMIAN WAXWING
							+1				CEDAR WAXWING
					+1		+2	+1			NORTHERN SHRIKE
											EUROPEAN STARLING
								1			AMERICAN TREE SPARROW
											DARK-EYED JUNCO (S-c)
	+100		152		150		+5	637	90		SNOW BUNTING
	1						+1	6			RUSTY BLACKBIRD
2		1			16		10		37		PINE GROSBEAK
		6									WHITE-WINGED CROSSBILL
20	55	+3			18		43	82	1		COMMON REDPOLL
					3			1			HOARY REDPOLL
2		5	3	8			+2	4	6		EVENING GROSBEAK
40	259	21	633		+14		296	185	1109	90	HOUSE SPARROW
0	0	0	1	0	1	1	3	11	2	0	NO. SPECIES TABLES 3 & 4
10	9	15	13	10	15	5	16	32	21	7	NO. COUNT DAY SPECIES
11	12	16	13	10	21	5	30	38	21	7	NO. COUNT PERIOD SPECIES
104	373	143	993	74	267	9	813	1379	1908	163	NO. COUNT DAY INDIVIDUALS

Table 2-3. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
 A plus sign indicates a high count for a species seen during count period but not on count day

SPECIES	LOCALITY & DATE	GOODSOIL December 26	GOOD SPIRIT LAKE December 22	GOVENLOCK December 19	GRAND CENTRE - PIERCELAND December 24	GUERNSEY December 16	HERBERT January 01	HUDSON BAY December 31	HUMBOLDT December 26	INDIAN HEAD December 29	KAMSACK December 24	KENASTON January 03
CANADA GOOSE												
MALLARD										35		
COMMON GOLDENEYE		7										
BALD EAGLE										4		
NORTHERN GOSHAWK			+1		1							
GOLDEN EAGLE				2			1					+1
MERLIN							1		+1			
GRAY PARTRIDGE				59			99	+7	+26	+12	10	23
RING-NECKED PHEASANT				15								
RUFFED GROUSE		+3	+1							6		
SHARP-TAILED GROUSE			12	3			2		+5	12	30	+1
ROCK DOVE				3	6		6			63		42
GREAT HORNED OWL			+5	5					1	3	1	
SNOWY OWL		+1		2		1	1			2		+1
SHORT-EARED OWL				2						1		
DOWNY WOODPECKER		2	8		1			+1	2	7	2	
HAIRY WOODPECKER		2	9		2	1		+2	2	3	1	
THREE-TOED WOODPECKER												
BLACK-BACKED WOODPECKER												
PILEATED WOODPECKER			1					+2				
HORNED LARK				3043			12			1		+1
GRAY JAY		2			1			1				
BLUE JAY		4	+1		8			10	+3	17	4	2
BLACK-BILLED MAGPIE		6	21	5	11	3	19	2	+1	51	6	12
COMMON RAVEN		10	2		43	1		23	+1		10	
BLACK-CAPPED CHICKADEE		6	32		17			17	6	46	23	+1
BOREAL CHICKADEE			1		3					+1		
RED-BREASTED NUTHATCH										16		
WHITE-BREASTED NUTHATCH			1							10		
GOLDEN-CROWNED KINGLET			2									
AMERICAN ROBIN										5		
BOHEMIAN WAXWING			30						+27	74	140	
CEDAR WAXWING												
NORTHERN SHRIKE											2	
EUROPEAN STARLING				52		17				+1		
AMERICAN TREE SPARROW				1								
DARK-EYED JUNCO (S-c)		6							+1	1	2	
SNOW BUNTING		100	2	897		70		80	+300	255	150	575
RUSTY BLACKBIRD				1						18		
PINE GROSBEAK		+6	6		7			11	5	28	8	9
WHITE-WINGED CROSSBILL					45							
COMMON REDPOLL		4	117	49	86		+2		35	15		+84
HOARY REDPOLL			4	1								
EVENING GROSBEAK		40	1		1			62	+1	18	515	
HOUSE SPARROW		10	172	1032		50	250	4	5	289	160	125
NO. SPECIES TABLES 3 & 4		0	0	6	0	0	0	0	1	0	1	0
NO. COUNT DAY SPECIES		13	17	22	14	7	9	9	7	25	17	7
NO. COUNT PERIOD SPECIES		16	21	22	14	7	10	13	18	28	17	13
NO. COUNT DAY INDIVIDUALS		199	421	5240	232	143	391	210	56	980	1068	788

Table 2-4. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
 A plus sign indicates a high count for a species seen during count period but not on count day

KINDERSLEY January 01	KINDERSLEY January 01	KUTAWAGAN LAKE January 01	LAKE DIEFENBAKER January 01	LA RONGE December 28	LAST MOUNTAIN LAKE January 02	LEADER December 27	LITTLE BEAR LAKE January 01	LIVELONG December 22	LOON LAKE January 05	LOVE - TORCH RIVER December 31	LOCALITY & DATE SPECIES
											CANADA GOOSE
											MALLARD
			11								COMMON GOLDENEYE
											BALD EAGLE
								+1		1	NORTHERN GOSHAWK
		2	1		+1						GOLDEN EAGLE
											MERLIN
+8	4	8			10					+13	GRAY PARTRIDGE
						1					RING-NECKED PHEASANT
								6		1	RUFFED GROUSE
	+5	18	8		26						SHARP-TAILED GROUSE
4		9			1						ROCK DOVE
		2			1	1					GREAT HORNED OWL
1					+1			+1		+1	SNOWY OWL
					2						SHORT-EARED OWL
		3		1				1	2	6	DOWNY WOODPECKER
				+2				2	2	5	HAIRY WOODPECKER
										+1	THREE-TOED WOODPECKER
											BLACK-BACKED WOODPECKER
											PILEATED WOODPECKER
	5				+1						HORNED LARK
				4			3		4	11	GRAY JAY
				3				+1	5	9	BLUE JAY
3	1	28	3		19	28		4	+3	11	BLACK-BILLED MAGPIE
			1	67			3	6	+2	42	COMMON RAVEN
		2		3		1	+1	12	6	28	BLACK-CAPPED CHICKADEE
				+1			+7				BOREAL CHICKADEE
								+2		2	RED-BREASTED NUTHATCH
											WHITE-BREASTED NUTHATCH
											GOLDEN-CROWNED KINGLET
											AMERICAN ROBIN
5	3							+6	+4	+25	BOHEMIAN WAXWING
											CEDAR WAXWING
					1			+1			NORTHERN SHRIKE
					1					5	EUROPEAN STARLING
											AMERICAN TREE SPARROW
										1	DARK-EYED JUNCO (S-c)
50	17	82			838			50		98	SNOW BUNTING
											RUSTY BLACKBIRD
		14		3				30		33	PINE GROSBEAK
											WHITE-WINGED CROSSBILL
		88		8				40		152	COMMON REDPOLL
		+1								8	HOARY REDPOLL
				8				50	45	203	EVENING GROSBEAK
50	+157	236			635	40		20	60	87	HOUSE SPARROW
0	0	1	1	0	2	0	1	0	0	2	NO. SPECIES TABLES 3 & 4
6	5	12	6	8	12	5	3	11	7	20	NO. COUNT DAY SPECIES
7	7	13	6	10	15	5	5	17	10	24	NO. COUNT PERIOD SPECIES
113	30	585	25	97	1537	71	10	221	124	705	NO. COUNT DAY INDIVIDUALS

Table 2-5. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
 A plus sign indicates a high count for a species seen during count period but not on count day

SPECIES	LOCALITY & DATE										
	LUSELAND January 05	MAIDSTONE BRIDGE January 04	MARSDEN January 05	MELFORT January 05	MOOSE JAW December 26	NAICAM January 04	NIPAWIN December 23	NIPAWIN January 04	PIKE LAKE January 04	PINE CREE REGIONAL PARK December 22	PRINCE ALBERT January 01
CANADA GOOSE									+2		
MALLARD							7				
COMMON GOLDENEYE											
BALD EAGLE											
NORTHERN GOSHAWK		1			+1					1	
GOLDEN EAGLE		1			1						
MERLIN					2						
GRAY PARTRIDGE	27				160					12	
RING-NECKED PHEASANT					19						
RUFFED GROUSE		1							4		
SHARP-TAILED GROUSE	8	12							49	3	
ROCK DOVE	44	1			459		130		13		
GREAT HORNED OWL	1	1		+1	1		1			1	
SNOWY OWL	1			+1	1		1				
SHORT-EARED OWL									3		
DOWNY WOODPECKER	3	2	1		2	+1			11		1
HAIRY WOODPECKER		4		+1	4	2		1	11		1
THREE-TOED WOODPECKER											
BLACK-BACKED WOODPECKER					1						
PILEATED WOODPECKER											
HORNED LARK	3	+1								3	
GRAY JAY							2				
BLUE JAY	1	3		2	1		1	2	24		1
BLACK-BILLED MAGPIE	42	33		6	66	13	6	1	131	4	2
COMMON RAVEN		19		1		+1	43	9	7		14
BLACK-CAPPED CHICKADEE		15	3	2	26	5	7	8	102	26	12
BOREAL CHICKADEE											
RED-BREASTED NUTHATCH					2					18	
WHITE-BREASTED NUTHATCH								1			1
GOLDEN-CROWNED KINGLET							3		1		
AMERICAN ROBIN											
BOHEMIAN WAXWING	96	+3		+50	30	+12		7	88		
CEDAR WAXWING	2										
NORTHERN SHRIKE		2									
EUROPEAN STARLING	1				7				3		
AMERICAN TREE SPARROW					+1				1		
DARK-EYED JUNCO (S-c)				+15	4				1		
SNOW BUNTING	258	2350		+175	4	50	2		13	50	
RUSTY BLACKBIRD									1		
PINE GROSBEAK	2	14		18	8	13	14	3	295		1
WHITE-WINGED CROSSBILL											
COMMON REDPOLL	85	37	3	+15	188	+8	4		450	6	15
HOARY REDPOLL		3							3		5
EVENING GROSBEAK	+2	7		20	17		53	52	52		50
HOUSE SPARROW	67	900	2	68	697	12	1	2	90		12
NO. SPECIES TABLES 3 & 4	0	1	1	0	1	0	2	0	1	0	0
NO. COUNT DAY SPECIES	16	19	5	7	23	6	15	10	22	10	12
NO. COUNT PERIOD SPECIES	17	21	5	14	25	10	17	10	23	10	12
NO. COUNT DAY INDIVIDUALS	641	3491	10	117	1701	95	275	86	1524	124	115

Table 2-6. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
A plus sign indicates a high count for a species seen during count period but not on count day

LOCALITY & DATE											SPECIES
PRINCE ALBERT NATIONAL PARK December 19	RAYMORE December 26	REGINA December 26	ROSCOMMON December 26	ROUND LAKE January 04	ST. WALBURG December 26	SASKATOON December 26	SCOTT January 02	SKULL CREEK January 05	SOMME December 21	SPRING VALLEY December 31	
		352						3			CANADA GOOSE
+1				6		36					MALLARD
						188					COMMON GOLDENEYE
	+1								1		BALD EAGLE
	+1	1				+1			+1		NORTHERN GOSHAWK
	+1			+1				1		1	GOLDEN EAGLE
	1	1				9					MERLIN
	+7	50		13		22	39	+7	+5	94	GRAY PARTRIDGE
	+1			+1				7			RING-NECKED PHEASANT
4	+1			1		2			7		RUFFED GROUSE
	6	17		1	22	58		7	21	72	SHARP-TAILED GROUSE
	17	1248				2695	21		3	38	ROCK DOVE
	1	3		2		1	1	2	+1	3	GREAT HORNED OWL
	1	3	+1				5	1		1	SNOWY OWL
								1			SHORT-EARED OWL
1	1	3	3	10	1	9	1	2	4		DOWNY WOODPECKER
2	2	+1	2	7		7		1	10		HAIRY WOODPECKER
									1		THREE-TOED WOODPECKER
		+1					1		2		BLACK-BACKED WOODPECKER
1				1					+1		PILEATED WOODPECKER
	4							54	+1	81	HORNED LARK
19									12		GRAY JAY
1	3		+2	7		16	3	4	13		BLUE JAY
6	56	29	6	25	3	231	53	7	23	5	BLACK-BILLED MAGPIE
27	+2		2		22				63		COMMON RAVEN
25	11	7	6	20	2	126	2	13	38		BLACK-CAPPED CHICKADEE
4									8		BOREAL CHICKADEE
1	1	11				17		1			RED-BREASTED NUTHATCH
		3		8					2		WHITE-BREASTED NUTHATCH
	1					8			3		GOLDEN-CROWNED KINGLET
	+1			17		5				+1	AMERICAN ROBIN
	4	+9	35	150		2103	25		8		BOHEMIAN WAXWING
	2	3				1					CEDAR WAXWING
	1	+1				1			+1		NORTHERN SHRIKE
	3	7				38					EUROPEAN STARLING
				+3		2		4			AMERICAN TREE SPARROW
		5				7					DARK-EYED JUNCO (S-c)
22	30	60	+60	75	300	153	154	50	173	453	SNOW BUNTING
	+1										RUSTY BLACKBIRD
	12	23	9	4		179	14	8	9		PINE GROSBEAK
	+8	23				41	20				WHITE-WINGED CROSSBILL
21	30	22	3	100	34	847	12		9	+18	COMMON REDPOLL
	1	+1		6		10			1		HOARY REDPOLL
16	7	11	+8	150		25	8		86		EVENING GROSBEAK
	1355	947	2	75	3	1759	246	10	64	226	HOUSE SPARROW
2	4	4	0	4	1	5	1	2	1	0	NO. SPECIES TABLES 3 & 4
16	24	24	9	21	9	32	16	19	23	10	NO. COUNT DAY SPECIES
17	36	31	13	27	9	34	16	21	30	12	NO. COUNT PERIOD SPECIES
154	1578	2833	68	684	390	8601	648	177	561	974	NO. COUNT DAY INDIVIDUALS

Table 2-7. SPECIES RECORDED FROM MORE THAN THREE LOCALITIES.
 A plus sign indicates a high count for a species seen during count period but not on count day

SPECIES	LOCALITY & DATE	SQUAW RAPIDS December 24	TISDALE January 02	TISDALE December 25	WEYBURN December 22	WHITE BEAR December 28	WHITE BEAR LAKE December 27	WHITEBEECH January 01	WOLSELEY SOUTH January 01	YORKTON December 21	SPECIES TOTAL	NUMBER OF SPECIES SEEN COUNT DAY	NUMBER OF SPECIES TOTAL COUNT PERIOD
CANADA GOOSE											356	3	4
MALLARD		8									507	8	9
COMMON GOLDENEYE		250									469	6	6
BALD EAGLE		2									11	5	8
NORTHERN GOSHAWK		2				1					12	10	17
GOLDEN EAGLE						+2					14	10	16
MERLIN					+1						17	7	9
GRAY PARTRIDGE					50	3			12		867	25	36
RING-NECKED PHEASANT					+1	4					58	9	13
RUFFED GROUSE		7						+6	+1		48	14	19
SHARP-TAILED GROUSE		3			16	59	1		2	13	644	39	42
ROCK DOVE					122	154			21	198	5938	37	37
GREAT HORNED OWL		2		1	8	2			+1		69	36	41
SNOWY OWL											29	19	28
SHORT-EARED OWL											11	7	8
DOWNY WOODPECKER		4	3	4	1	+1	1	2		1	129	45	49
HAIRY WOODPECKER		9	2	4	2		4	2	1	1	141	46	52
THREE-TOED WOODPECKER		5									10	5	6
BLACK-BACKED WOODPECKER		6									11	5	7
PILEATED WOODPECKER		2									7	6	9
HORNED LARK					39	+1					3710	16	22
GRAY JAY		12						2			81	15	15
BLUE JAY		10	1				1	8		1	187	39	44
BLACK-BILLED MAGPIE		6	+1	6	19	47	4	1	6	32	1807	67	71
COMMON RAVEN		75		3				+4			613	32	37
BLACK-CAPPED CHICKADEE		34	6	7	3	+1	5	10	2	27	1069	59	62
BOREAL CHICKADEE		6									40	8	12
RED-BREASTED NUTHATCH		1			+2						87	13	15
WHITE-BREASTED NUTHATCH		1					2				41	14	14
GOLDEN-CROWNED KINGLET		2									22	9	9
AMERICAN ROBIN							+1			+1	55	5	9
BOHEMIAN WAXWING		3	1	10	+17	+1	+49		+13	325	3659	32	45
CEDAR WAXWING											8	4	5
NORTHERN SHRIKE		1				+1					11	8	15
EUROPEAN STARLING					+10	1			+10		135	11	14
AMERICAN TREE SPARROW											9	5	7
DARK-EYED JUNCO (S-C)				1	2						30	10	12
SNOW BUNTING		2312		+20	50	20			1	224	14260	50	56
RUSTY BLACKBIRD					+1						31	7	10
PINE GROSBEAK		162		4	6		6	+8	5	6	1170	46	48
WHITE-WINGED CROSSBILL											174	7	9
COMMON REDPOLL		99		10	73		54	+1	45	23	3241	16	23
HOARY REDPOLL		2			3						93	18	20
EVENING GROSBEAK			27	20			15	40	3	12	1761	41	45
HOUSE SPARROW			7	10	526	200	24	+6	10	406	15230	61	64
NO. SPECIES TABLES 3 & 4		7	0	0	1	0	0	0	0	1			
NO. COUNT DAY SPECIES		34	7	12	15	10	11	7	10	15			
NO. COUNT PERIOD SPECIES		34	8	13	22	16	13	12	14	16			
NO. COUNT DAY INDIVIDUALS		3075	47	80	920	491	117	65	96	1282			

Table 3. SPECIES SEEN IN THREE OR FEWER LOCALITIES.

SPECIES	LOCATIONS AND NUMBERS SEEN
GREAT BLUE HERON	FORT WALSH 1
TUNDRA SWAN	LAKE DIEFENBAKER 1
TRUMPETER SWAN	SQUAW RAPIDS 1
NORTHERN PINTAIL	FORT WALSH 1
AMERICAN WIGEON	ROUND LAKE +4
CANVASBACK	ROUND LAKE +2
REDHEAD	SASKATOON 1
COMMON MERGANSER	GARDINER DAM 35; SQUAW RAPIDS 12
SHARP-SHINNED HAWK	BIRCH HILLS 1
COOPER'S HAWK	RAYMORE +1
ROUGH-LEGGED HAWK	GOVENLOCK 2; RAYMORE +1; SQUAW RAPIDS 1
PRAIRIE FALCON	BROMHEAD 1; GOVENLOCK 1; SKULL CREEK 1
SPRUCE GROUSE	FIR RIVER 3; LITTLE BEAR LAKE 4; SQUAW RAPIDS 6
SAGE GROUSE	FORT WALSH +3; GOVENLOCK 3
MOURNING DOVE	NIPAWIN (#51) +1
EASTERN SCREECH-OWL	YORKTON 1
NORTHERN HAWK-OWL	ROUND LAKE +2; SQUAW RAPIDS 1
BARRED OWL	LOVE - TORCH RIVER 1; REGINA +1
GREAT GRAY OWL	LOVE - TORCH RIVER 1; SQUAW RAPIDS 1
BOREAL OWL	BIG GULLY CREEK 1
NORTHERN FLICKER	HUMBOLDT +1; REGINA +1; SASKATOON 1
AMERICAN CROW	FORT QU'APPELLE +1
BROWN CREEPER	FORT WALSH 1; P. A. NATIONAL PARK 3; SASKATOON 3
TOWNSEND'S SOLITAIRE	REGINA 3
FIELD SPARROW	SASKATOON +1
FOX SPARROW	MOOSE JAW 1
WHITE-THROATED SPARROW	MARSDEN 1
HARRIS' SAPRROW	FORT QU'APPELLE +1
LAPLAND LONGSPUR	FORT WALSH 1; GOVENLOCK 48; P.A. NATIONAL PARK 1
RED-WINGED BLACKBIRD	GOVENLOCK 6
WESTERN MEADOWLARK	FORT WALSH +1
BREWER'S BLACKBIRD	SOMME +1; WEYBURN +1
COMMON GRACKLE	NIPAWIN (#51) +1; REGINA 1
ROSY FINCH	FORT WALSH +5; SKULL CREEK +50
PURPLE FINCH	FORT QU'APPELLE +1; KAMSACK 4; ROUND LAKE 6
RED CROSSBILL	FORT WALSH 20; RAYMORE 3; ST. WALBURG 3
PINE SISKIN	WEYBURN +2

Table 4. BIRDS NOT IDENTIFIED TO SPECIES.

SPECIES GROUP	LOCATIONS AND NUMBERS SEEN
EAGLE species	LAST MOUNTAIN LAKE (1)
ACCIPITER species	FORT WALSH (1, small)
FALCON species	SASKATOON (1)
CHICKADEE species	BIG GULLY CREEK (7)
FINCH species	ENDEAVOUR (13), FORT WALSH (9)
CROSSBILL species	SQUAW RAPIDS (8)
REDPOLL species	ARDATH-OUTLOOK (19), BIGGAR (48), BIG GULLY CREEK (35), BRIGHTWATER RESERVOIR (43), DUVAL (30), FORT WALSH (8), GARDINER DAM (15), GOVENLOCK (8), KUTAWAGAN LAKE (93), LAST MOUNTAIN LAKE (2), MAIDSTONE BRIDGE (85), PIKE LAKE (171), RAYMORE (25), SCOTT (43), SQUAW RAPIDS (19).

EARLY MONTANA NATURALISTS AND OOLOGISTS*

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Many eminent naturalists studied birds on the plains of northern Montana. Beginning with Lewis and Clark in 1805, naturalists initially crossed the state using the two major "water highways," the Missouri and Yellowstone rivers, which joined a few miles east of the present North Dakota-Montana boundary. In the 1860s, army surgeons, trained in natural sciences, began to accompany U.S. Army expeditions which surveyed railroad routes through hostile Indian territory. Each surgeon made collections of plants and animals. Two of them, George Suckley and Elliott Coues, briefly crossed the 49th parallel, north into what is now southern Saskatchewan. Records of these early visitors provide a valuable historic perspective concerning the northern great plains, which then contained vast herds of bison, elk, and pronghorn. Nowhere, except perhaps in the pioneering days on the African veldt, had there been comparable numbers of large mammals.²¹

Meriwether Lewis and William Clark were commissioned by President Thomas Jefferson to map the Missouri River and continue to the Pacific Ocean. Clark was the cartographer. Lewis, though much less knowledgeable than later naturalists, and quite unaware of the need to describe and name new species, was to collect the plants and animals. As McKelvey says, "Lewis and Clark were to all intents and purposes untrained in any science and had as their major responsibility the safety of some fifty persons."³⁴ Unaware that the senior La

Verendrye had visited the Mandan villages in December 1738 and that Spanish fur traders already had ascended the Missouri, Lewis mistakenly wrote on 7 April 1805, just before leaving Fort Mandan, (north of present day Bismarck), that he was "about to penetrate a country ... on which the foot of civilized man had never trodden."²¹ Although they were not the first to visit this stretch of river, they made the earliest observations concerning its wildlife. Lewis, for instance, was the first to report Canada Geese nesting in hawk and eagle nests, of a previous year, high in cottonwoods, and Clark's description of the "whistling" note of the swan led George Ord to give the common name of "Whistling Swan" to *Anas columbianus* in 1815. By 26 April the expedition left the mouth of the Yellowstone and entered into what is now Montana. Lewis described northern Montana as "truly a desert barren country," leading early cartographers and later explorers to label it "the Great American Desert".²¹ On 29 April, they shot their first Grizzly Bear just above the mouth of the Poplar River. Lewis' description of this bear, then common on the plains, was the first with anatomical detail and it was later used by Ord as the "type specimen" for *Ursus horribilis* in 1815.³⁷

Unfortunately, specimens Lewis collected between Fort Mandan and Great Falls, which they reached on 22 June, were destroyed by flood waters at Great Falls during the next winter. Without them, most of Lewis' observations do not

* Fifth in a series on oologists of the Northern Great Plains.



Map of Montana

Prepared by Marc J. Bechard

allow confident identification as to species. Nevertheless, Lewis wrote of the Swift Fox and was the first to recognize that the Western and Eastern meadowlarks were different. While exploring the Marias River, he recorded sufficient detail to receive credit for the first sight record of the Sage Grouse, 22 years before Bonaparte gave it a scientific name. Before crossing the Rocky Mountains into Idaho, Lewis collected a Bushy-tailed Wood Rat, which became the type specimen when described by Ord in 1815.³⁷

Lewis' most lasting contributions to ornithology were not made until the expedition's return trip in 1806. Near the present site of Kamiah, Idaho, he collected specimens later named by Alexander Wilson as the Lewis' Woodpecker, Clark's Nutcracker and Western Tanager.² Other "firsts" credited to Lewis by Cutright and Coues were not given

Latin names and thus failed to be recognized as "type specimens."

Lewis' list of botanical "firsts" is more impressive, because a German botanist, Frederick Pursh, gave Latin names to 77 of Lewis' specimens. Many of these were collected along the Marias River during Lewis' return trip through Montana in July and early August of 1806.²¹

Reports of unlimited wildlife, particularly fur-bearers, soon attracted the interest of trading companies. By 1831, steamboats of the American Fur Company went up the Missouri regularly as far as Pierre and once a year as far as Fort Union, built in 1829 near the junctions of the Yellowstone and Missouri rivers. Ornithologists soon followed.

In 1833, Alexander Maximilian, Prince of Wied-Neuwied, spent 2 weeks at Fort Union, and then followed up the

Missouri the full width of the plains to Fort McKenzie on the Marias River, 11 miles northeast of present Fort Benton. Maximilian shot and prepared many birds, but most were lost when the steamboat carrying them went up in flames.³² A Pinyon Jay specimen was nevertheless saved and described by Maximilian as a species new to science.

In 1843, John James Audubon, accompanied by Edward Harris, Isaac Sprague and John G. Bell, all of whom thereby contributed their names to new bird species, ascended the Missouri and resided at Fort Union for over 2 months, 12 June to 16 August. Once or twice they followed buffalo hunts southwest into what is now Montana. On 24 June Sprague killed a new species, the Sprague's Pipit, and discovered its nest with five eggs. As Audubon remarked to Harris, "it had very rarely happened to him to discover a new bird and to ascertain all its habits and to procure its nest and eggs in the course of a few days."³³

At Fort Union, Audubon also collected a new sparrow, which he named for a 20-year-old student, Spencer Fullerton Baird, who had been unable to accompany the expedition.²³ The Western Meadowlark, long overlooked in spite of a very different song from the well-known Eastern Meadowlark, was recognized by Audubon and Harris as the "New Meadowlark" as they ascended the Missouri.³ The "type specimen" was not collected until they reached Fort Union,² then in "Nebraska Territory" though the territory was not formally promulgated until 1854. Such listings for "Fort Union, Nebraska" have confused many an ornithologist because, although just 67 miles south of the 49th parallel, the address did not change to "Dakota Territory" until 1867.

Dr. George Suckley, who accompanied the Northern Pacific Railroad Expedition of 1853, was the first naturalist

who travelled overland and did not rely on the river for transportation.⁴² Led by Governor I.I. Stevens of the new Washington Territory, the party left Sauk Rapids, Minnesota, on 6 June. Before reaching Fort Union, Suckley led a side trip on 28 July to visit the pierced rock (Roche Percee), in "British Territory."⁴¹ Suckley collected bird specimens in North Dakota and Saskatchewan and preserved them in alcohol, but unfortunately they were lost in the Ohio River en route to Washington.³¹ Suckley left Fort Union on 9 August, travelling with horses and wagons alongside the Missouri River across the Northern Great Plains. He reached Fort Benton on 8 September and continuing west reached Fort Colville on 13 November and the mouth of the Columbia River on 9 December. At Shoalwater Bay, Washington, he collected the type specimen of the dark subspecies of the Merlin, named *Falco columbarius suckleyi* by Ridgway. With J.G. Cooper he wrote *A Report on the Birds Collected on the Route Near the 47th and 49th Parallels*, which was later reprinted with a different title.^{16 17 42}

In 1854 and 1855, Ferdinand Vandiveer Hayden accompanied Colonel Alfred Vaughan, an Indian agent, to Montana. They explored the Yellowstone River and the Missouri River west to Fort Benton. Hayden returned for further explorations of both rivers in 1856, this time under Lieutenant G.K. Warren. Hayden's greatest contributions were to Geology, but he published notes on 183 species of birds. His accounts are disappointingly vague as to locality and date. However, he reported the Turkey Vulture as "very abundant," and the Merlin as "one of the most common and abundant birds in the Northwest ... usually along the woody bottoms of streams." The Common Raven was "very abundant ... in the vicinity of large herds of buffalo," and the Black-billed Magpie was observed feeding on the meat of the "buffalo and

other game." Hayden collected some bird skins, including specimens of the Eskimo Curlew taken in migration near Fort Union.²⁹

In 1860 Dr. James Graham Cooper (for whom the Cooper Ornithological Society was named, and the son of William Cooper, for whom Bonaparte named Cooper's Hawk) was attached to a military expedition under Major G.M. Blake, to follow the overland route along the new military road constructed by Captain John Mullan through the Rocky Mountains west of present Helena.¹⁵ Leaving Fort Union in mid-June, Cooper collected "numerous specimens of small mammals, birds and eggs," which were sent to the Smithsonian Institution but "were never received there."¹⁹ Cooper's bird observations in five instalments in the *American Naturalist* were not published until 1868 and 1869.¹⁸ ¹⁹ Cooper was on the first steamboat to ascend the Missouri to Fort Benton.¹⁵ On this trip the Lark Bunting, "the pretty and musical bird of the high plains," was everywhere. The Passenger Pigeon, he said, "breeds here," though the only nest of a Columbidae found was that of a Mourning Dove with two eggs. Black-billed Magpies were not encountered until he reached Fort Benton.¹⁹

In 1873, Joel Asaph Allen, later to be first president of the American Ornithologists' Union and editor of *The Auk* for 28 years, was naturalist with the second Northern Pacific Railroad Expedition under General D.S. Stanley. They left the Missouri at Fort Rice, south of present Bismarck, crossed the Heart River near its Big Bend on 26 June, and followed the north bank of Big Muddy Creek for 20 miles, where they were detained from 28 June to 1 July. Here within present North Dakota, Allen, a keen nest finder, found the first nest ever found of the Baird's Sparrow, and collected several new species of butterflies for Samuel Scudder. Of 18 Lark Bunting egg

sets he collected, 5 contained Brown-headed Cowbird eggs, whereas 29 nests of other ground-nesting birds had no cowbird eggs.¹ On 10 July, they crossed the Little Missouri River and by 13 July they reached Beaver Creek, near present Wibaux, Montana.

Upland Sandpipers were common on the prairies and an occasional Ferruginous Hawk nest contained "coarse sticks mixed with the ribs of antelopes and buffalos." On 16 July they reached the Yellowstone River near present Glendive. Here they found Mountain Bluebirds and Sage Grouse, but only a few Barn Swallows nesting under projecting rocks. They ascended the Yellowstone to Pompey's Pillar, crossed overland to the Musselshell River west of present Roundup, and then cut back across the Yellowstone near Little Porcupine Creek, returning much the way they had come. Allen reported that the Black-billed Magpie was seen only at 'distant intervals.'¹

Dr. Elliott Coues, whose lifetime publications totalled over 600, spent his second summer surveying birds with the United States Northern Boundary Commission in 1874.²² His first survey had begun the previous summer at Pembina on 1 July; "in some particular spots" between there and the Souris River, Baird's Sparrow surprisingly had "outnumbered all the other birds together."²⁰

Coues began his 1874 survey on 21 June at Fort Buford, just 3 miles east of Fort Union.²² Following the north bank of the Missouri and then the Frenchman River, where American Bison were first encountered, they found the Mountain Plover common, locating a nest with three eggs on 15 July. Other characteristic species in the Missouri drainage in 1874 were Sage Grouse, Burrowing Owl, Horned Lark, Western Kingbird, Le Conte's Sparrow, and McCown's Longspur. At that time the Swift Fox was common,

but Black-billed Magpies were encountered only west of the Milk River. Baird's Sparrows, Sprague's Pipits and Chestnut-collared Longspurs were, surprisingly, less common than they had been the previous summer. Upland Sandpipers were not seen after leaving the Missouri, but the Long-billed Curlew was "found in profusion over the prairie" along the Milk River. The Mountain Plover was common near the Frenchman River and a nest with three eggs was found on 9 July. Coues collected five sets of Swainson's Hawk eggs, (none with more than two eggs), all from nests on a projecting shelf of ground, generally near the top of a creek embankment.²⁰ This is one of the first records of Swainson's Hawk nesting in structures other than trees — a necessity in this nearly treeless country.

Coues reached the 49th parallel at Battle River on 15 July. John E. Parson's 1963 book, *West on the 49th Parallel*, allows identification of the sites of two of Coues' most important raptor nests, with a map showing the location of the astronomical station on the 49th parallel at Lodge Creek.³⁹ This is almost exactly where the Willow Creek customs entry post is now located on Saskatchewan Highway 21. Within "a few hundred yards" of the astronomical station, Coues located one nest each of the Swainson's Hawk, Ferruginous Hawk and Prairie Falcon. Upstream to the northwest "a few miles," (later rendered as "ten miles") was an active Peregrine Falcon nest with three young, on a slight shelf 12 feet below the top of a 90-foot perpendicular "cut-bank" of Lodge Creek. This was undoubtedly the first Peregrine Falcon nest ever recorded in Saskatchewan and was only one valley west of Battle Creek where J.E. Bowman found one Peregrine pair nesting in 1914, one in 1916, and two in 1917.^{4 5} Although misrepresented on the Cutright-Brodhead map²², Coues continued within Canada, across what is now the Alberta boundary, to reach Milk

River Lake, 49° 01' N 110° 12' W, on 22 July. Coues then moved slightly south of west to the "Three Buttes" in the Sweetgrass Hills of Montana where he found Mountain Sheep for the first time.

In the 1880s, two keen oologists were successively stationed at Fort Custer, where the mountains of southern Montana meet the Northern Great Plains. The first was Dr. James Cushing Merrill, who in 1881 published "*Oological notes from Montana*" in which he claimed to have found the first-ever sets of the "Pink-sided Junco" and "Red-naped Sapsucker."^{31 36} He also took sets of the Ruby-crowned Kinglet, Mountain Chickadee, Audubon's Warbler, and Arctic Towhee, very few of which had been obtained previously.³⁶ The earliest Montana egg sets in the Western Foundation of Vertebrate Zoology (WFVZ) collections are two sets of Vesper Sparrow eggs collected at Fort Custer, one in 1881 by Merrill and another in 1885 by the second oologist, Major Charles Emil Bendire, a hospital steward in the U.S. Army. Bendire was one of the most indefatigable egg collectors of all time; he published two magnificent volumes of Life Histories, famous for their colour plates of birds' eggs.⁶ Coues arranged for Bendire's collection to form the basis of the oological cabinet at the Smithsonian and for Bendire to be its honorary curator until his death.³¹ Fort Custer was also visited for 3 days in 1889 by a third Army surgeon, Dr. Edgar Alexander Mearns, who published a short list of birds in the area.³⁵

From July 1888 through September 1892, Captain Platte M. Thorne of the 22nd Infantry, U.S. Army, was stationed at Fort Keogh, just a few miles above present Miles City. He published a list of 137 species of birds identified there. He listed the Upland Sandpiper, Long-billed Curlew and Sage Grouse as common. Raptors, with the exception of the American Kestrel and Great Horned Owl, had already become scarce.⁴³



E.S. Cameron

Photo courtesy Ray Quigley

The first serious resident student of breeding birds in Montana was Ewen Somerled Cameron, who had been born and raised in the Western Isles of Scotland. Before he came to ranch in Montana in 1889 at the age of 34, he had attended Oxford University and had been elected a Fellow of the Zoological Society of London and a Member of the British Ornithologists' Union.³⁸

Cameron and his wife lived briefly at a ranch on the west side of the Powder River south of Terry, before moving to their own ranch closer to Terry. In 1902 they moved to another ranch four miles north of Fallon on the north side of the Yellowstone. These ranches were near the boundary between Dawson and Custer counties. An enthusiastic hunter, Cameron took long trips as far as the Missouri Brakes south of Jordan (now occupied by the Fort Peck Reservoir), where he hunted Grizzly Bear. He had

a rule "never to kill wild birds on his ranch." Though he made detailed observations of the nesting behaviour of the Golden Eagle,^{7 11} Ferruginous Hawk,¹⁴ Swainson's Hawk,^{12 13} and Great Blue Heron,⁸ he seems to have collected only an occasional addled egg.¹² His long, well-written articles on the above species, illustrated with excellent photographs, appeared in *The Auk*, together with detailed notes on 192 species.^{9 10} Like most birdwatchers of his day, he did not identify birds by their songs, so had fewer records of the smaller species.

Cameron provides details of the almost universal persecution suffered by raptors in the early ranching days, mirroring the philosophy evident at that time across the border in Saskatchewan: "...all large hawks, lumped together under the name of hen-hawk, have their nests destroyed, and their young ruthlessly stoned at sight, even if the parent birds escape being shot."¹² As a result, Swainson's Hawks were greatly reduced in numbers by 1913, and the Ferruginous Hawk, once "abundant" had become "very scarce," although nesting pairs had the protection of the rancher at two localities.¹⁴

Cameron tells how the Golden Eagle was "very common" during his first years in Montana until high bounties were placed on wolves. During 1897, 22,082 coyotes and 6,112 wolves were killed as "eastern Montana swarmed with professional wolfers ... their average catch was three to six eagles apiece each winter." Fifty to 60 Golden Eagles were trapped and poisoned each year near Terry, together with many migrating and wintering Rough-legged Hawks.⁷ "Magpies were entirely exterminated on the south side of the Yellowstone," evidence that non-raptorial species suffered as well.⁷

Until the last bison had been killed in 1893, Turkey Vultures were "incredibly numerous" and roosted "in the thousands" near Dan Bowman's ranch

on the Powder River south of Terry. A "colony" of 75 persisted until 1887, but they rapidly declined; Cameron himself had only six sightings of up to six individuals and no nesting reports between 1889 and 1906.⁹

Pinyon Jays were common permanent residents in the pine hills. Cameron described in detail the first two nests found in Montana, and told of flocks of 100 of these interesting jays.⁹

Cameron's dedication is evident from the fact that he and his wife moved 40 miles to a friend's ranch for 9 months in 1907, simply to study the Golden Eagles that nested there in a tall pine on a steep hillside. These eagles were unusual because they lived almost exclusively on Black-tailed Prairie Dogs. They took no notice of a man mounted on a horse. Cameron could ride beneath the branch on which the adults perched and photograph them without disturbance.¹¹ Unfortunately, in early 1915 horses fell on Cameron twice; he died that May after a four-month illness.³⁸

In 1903, George Willett, later of the Los Angeles County Museum, spent the summer near Malta.³⁰ He published an important article about the birds on two nesting islands in Bowdoin Lake, where there were hundreds of Great Blue Herons and a small colony of White Pelicans. Willett swam to the island with a ten-pound wooden pickle bucket to bring back the eggs.⁴⁵ On the prairies he found 50 nests of the Sage Grouse, with clutches of 8 to 15 eggs.⁴⁴ His sets of eight species, including a single Golden Eagle egg, are in the collections of the Western Foundation of Vertebrate Zoology (WVZ).

Near Chinook, William A. Bowman and John E. Bowman collected raptor eggs with great enthusiasm. William is known to have collected a set of four Western Grebe eggs at Sweetwater Lake,



George Willett, Alaska, 1912

Photo courtesy Ray Quigley

North Dakota, on 28 May 1899.⁴⁴ He took a set of four Long-billed Curlew eggs from the Bearpaw Mountains south of Havre on 13 May 1902, the year after Ed Boyer had taken a similar set from the same area for E.S. Bryant. Thereafter Bowman seems to have restricted his collecting entirely to raptors. He took a set of three Golden Eagle eggs from a pine 60 feet from the ground in the Bearpaw Mountains on 27 April 1902 and the same day a set of five Prairie Falcon eggs from a cliff hole. He returned to this cliff and took a second set the following year. Presumably the N.R. Bowman who took a Ferruginous Hawk set in 1903 was a relative, if not a mis-reading for W.A. Bowman.

For the next few years William Bowman took a special interest in Buteo eggs. In 1904, his most active year, he collected at least eight sets of Ferruginous Hawk and one set of Swainson's Hawk eggs plus a set of Prairie Falcon eggs. His

Peregrine Falcon sets collected in 1905 and 1906 are important records for Choteau County; one nest was 20 feet from the top of a 40-foot face and the second was 6 feet from the top of a 31-foot face.

In 1904 and 1907 William Bowman made trips into Saskatchewan, each year collecting one set each of Prairie Falcon eggs and of Ferruginous Hawk eggs. His last set of Ferruginous Hawk eggs was taken in 1909 near Chinook. He remained in Chinook for several years, variously listed as a restaurant owner, a saloon owner, a homesteader, and a painter. In 1914 the *Chinook Opinion* reported he had shot a deer in the Rockies that season.

John E. Bowman began collecting eggs in 1911, after William had stopped. Since the *Chinook Opinion* reported instances of John visiting William, one suspects that John was either a son or a younger brother of William's. In 1911, John took 14 sets of Ferruginous Hawk and five sets of Swainson's Hawk eggs in Choteau County between 23 April and 1 May; two of the Swainson's sets found their way to

E.J. Darlington and R.M. Barnes and are now in the Field Museum of Natural History in Chicago. In 1914, John began annual trips along the tributaries of the Milk River in Hill, Choteau and Blaine counties and into southwestern Saskatchewan. Presumably he travelled on horseback, along Lodge Creek, then called "West Fork Creek" or "Willow Creek," along the east fork of Battle Creek called "East Fork," and along Battle Creek, then called "North Fork Creek." In Saskatchewan alone he took 17 Ferruginous sets, all on Battle Creek or Lodge Creek, and all on cutbanks, never in trees. John also took nine Prairie Falcon sets in Saskatchewan and six sets in Montana. Important for the historical record are the eight sets of Peregrine Falcon eggs, four along Battle Creek in Saskatchewan and four in Montana, between 1914 and 1917.

John Bowman did not collect eggs after 1917. In addition to sets in the WFVZ and Field Museum, other eggs are in the collections of the Carnegie Museum (Pittsburgh), American Museum of Natural History (New York), Agassiz Museum of Harvard University (Cambridge), and the



Bowman residence, Chinook, Montana (corner of Illinois and Third; one of the oldest houses standing in Chinook)

Keith C. Abel



A.D. Du Bois taking bird photographs

Photo courtesy Ray Quigley

Richter Collection of the University of Wisconsin (Green Bay).

The other oologist of consequence in Montana was Alexander Dawes Du Bois, who worked for the Forest Service in Flatland National Forest in 1914 and then homesteaded for several years near Dutton in Teton County. Seven of his sets are in the WFVZ: four of McCown's Longspur, two of Chestnut-collared Longspur, and one of the Sora. He contributed two minor notes to *The Condor* at the time, and then in the 1930s he published exemplary life-history studies of the Baird's Sparrow, Chestnut-collared Longspur and Horned Lark, based on careful, detailed observations years earlier in Montana.^{24 26 25} More popular accounts were published posthumously in book form, *Birds and their Ways* including his Montana accounts of the

habits of prairie birds.^{27 28} Du Bois was a pioneer in life history studies who deserves to be remembered.

Interest in oology declined early. There have been no resident oologists on the Montana plains since 1917, when L.L. Walters took a set of Sage Grouse eggs near Jordan. Visiting oologists since then have included W.J. Sheffler, A. Walker and Ed N. Harrison.

Montana thus has a rich historical legacy, largely forgotten by modern ornithologists. As regards oology, we might wish the Bowmans had shown a little restraint, yet their records provide our only evidence that the Peregrine Falcon once nested in southwestern Saskatchewan. Ewen Cameron's writings offer corroborating evidence to that provided in adjacent Saskatchewan by Spencer

Pearse and Laurence Potter and in Manitoba by Ernest Thompson Seton, regarding the disastrous effects of raptor persecution in the early years of settlement.

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THE MANITOBA BURROWING OWL SURVEY 1982-1984

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Burrowing Owl

Brian D. Ratcliff

The Burrowing Owl was officially classified as a threatened species in Canada in 1979 by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). A declining population has been reported over much of the owl's former breeding range resulting in the Threatened status designation.¹³ The Burrowing Owl also has been on National Audubon Society's early warning Blue List every year since 1971 when the list was initiated.¹⁰

Little is known about the Canadian Burrowing Owl population. The only studies

in Canada have been conducted by Lang and Weseloh and Wedgwood.^{6 12 13} Betsy Haug conducted a radio-telemetry study of the Burrowing Owl in Saskatchewan from 1981-82 for an M. Sc. thesis at the University of Saskatchewan, but the results had not yet been made available (pers. comm., 1984). There have been no thorough studies of the Manitoba population which represents the northeastern extent of the Burrowing Owl's range in North America.

A 3-year survey was conducted from May until August 1982-1984, with funding from the World Wildlife Fund and the Manitoba Department of Natural Resources, to determine the current status and distribution of Burrowing Owls in Manitoba. A banding program was also initiated to delineate the owls' migration routes and wintering grounds.

Methods

The study area extended from Winnipeg in the east, Swan River to the north and southwest to the Saskatchewan-North Dakota border. This area coincides with the Burrowing Owl distribution range from Wedgwood's COSEWIC report and also the range of the American Badger and Richardson's Ground Squirrel.² The abandoned burrows created by these mammals are used as nest sites by the owls.

Due to the large study area (approx. 80,000 km²) the only viable way to survey for the owls was to seek help from the general public. The initial month of the

survey involved setting up an elaborate communication network. The plan was to have local contact people throughout the study area to receive information from their communities. This would stimulate local interest in the project and enable people reporting owls to contact someone they knew. Thirty individuals acted as contact people. An article was placed in 37 newspapers describing the owls and survey, plus giving a local contact name and telephone number. A special poster was made and 700 copies were distributed throughout the study area in high schools, shopping centres, post offices and community halls. Since farmers visit local Agricultural Representative offices for information, posters were placed in 24 of these premises. Two radio interviews, one to describe and the other to summarise the survey, were recorded each year by the Manitoba Department of Natural Resources Media Services. Six radio stations in the province broadcast the interviews.

Nest records from the Prairie Nest Records Scheme (PNRS) at the Manitoba Museum of Man and Nature (MMMN) were investigated. All Burrowing Owl nest localities were revisited to determine their present status. Of ten nests reported from 1971-1981 only two were active during this survey. All but one of the sites still offered suitable habitat.

When a report of a Burrowing Owl was made I visited the person reporting the owl to verify each sighting. A special effort was made to talk to that person about the owls and to explain why the project was being conducted. Each nest was visited every 2 weeks and observations were made with a 20X spotting scope to minimise stress at the nest site.

Approximately 2 weeks after the young owls had emerged from the burrow, they were banded. The young owls were caught by using a box trap that fitted into the burrow. There was a one way (out)

swinging screen door in the trap which allowed the young to emerge from the burrow through the trap, but they were blocked off when they tried to re-enter the burrow. An electric weld wire cage was placed over the entire burrow area to prevent the young from running down other burrows. Adults were caught with a size 1 Havahart live animal trap. The owls were banded with a U.S. Fish and Wildlife Service band (size 4) on one leg and a colour ring on the other. Adults were colour-banded on the right leg and the young on the left leg. Blue colour bands were used in 1982, orange in 1983 and yellow in 1984. The ring was Rotex tape, 1 cm wide and 5 cm long. It was wrapped onto itself and glued to seal the end. The colour bands will aid in the determination of the owls' migration routes, wintering range and ageing of the resident breeding owls.

Discussion

Historical records of Burrowing Owls in Manitoba are limited. Atkinson stated that the Burrowing Owl was becoming numerous in many localities during the 1890's.¹ The distribution of Burrowing Owls in Manitoba as recorded in naturalist A.G. Lawrence's Winnipeg Free Press "Chickadee Notes" column (1921-55) is presented in Figure 1.⁷

Butts, Howie, Wedgwood and Zarn stated that Burrowing Owl populations have declined in many parts of their range throughout North America.^{3 5 12 14} Loss of habitat, control of burrowing mammals, secondary poisoning and road kills have all been suggested as factors which contributed to the decline. Land-owners I talked to during this survey indicated that the owls were fairly common from 1930-1960 but have declined since then.

Over the past 30 years many pastures

which offered suitable Burrowing Owl habitat have been converted to grain crops. The conversion of these pastures not only eliminates owl habitat but destroys the burrows that are required for nest sites. This loss of habitat is a major factor in the species' decline, but it should be noted that there are still many pastures with burrows in them that are not being used by owls. A critically low regional Burrowing Owl population is probably the reason why these pastures are not being used.

Ground squirrels and badgers have both been classified as vermin by landowners on the prairies. Programs to eliminate them from pastures results in the loss of burrows which offer potential nest sites. The use of rodenticides to

poison ground squirrels can also cause secondary poisoning in Burrowing Owls. Owls and other predators scavenge on these lethal carcasses. Observations during this survey confirm that landowners still use rodenticides to control ground squirrel populations.

Another possible reason for the Burrowing Owl decline is the use of insecticides to control grasshoppers. In 1984, local municipalities and landowners in southwestern Manitoba introduced spraying programs to control a major infestation of grasshoppers. Spraying programs result in the direct loss of food for the owls and possibly death from feeding on contaminated insects. After the young Burrowing Owls have hatched, grasshoppers are their primary food source. There

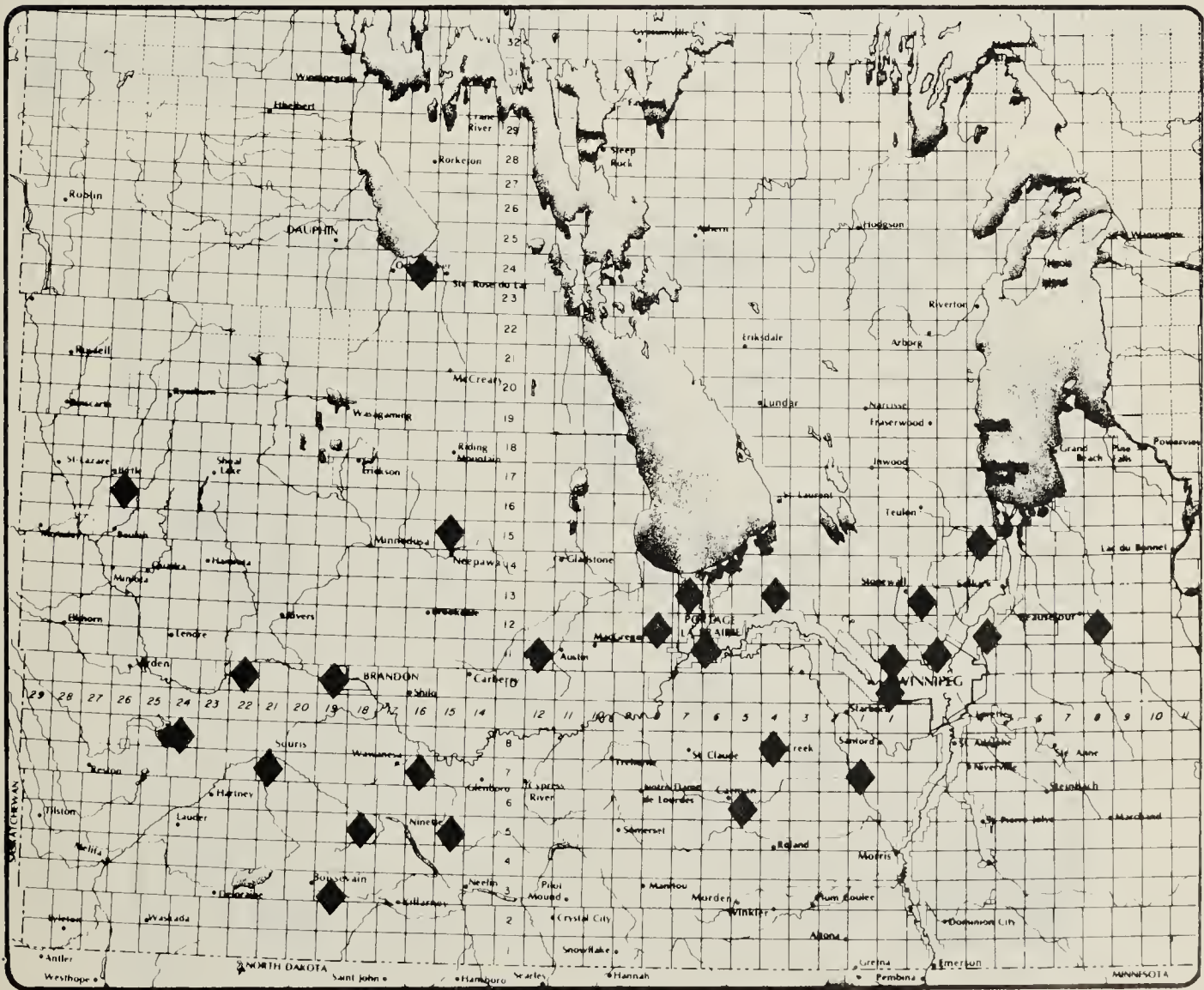


Figure 1. Historical records of Burrowing Owls from A.G. Lawrence's *Chickadee Notes* (1922-1955).

have been no studies to show the effects of secondary poisoning from rodenticides or insecticides on Burrowing Owls.

Mortality from road kills is a serious problem. During this survey there were reports of seven owls killed on highways. Most of the dead were young owls which had recently fledged and were scavenging for dead insects on the road after dark. Incidentally, while driving between Boise, and Pocatello, Idaho, in August 1981, I observed 23 Burrowing Owls dead on the road. Most were fresh carcasses from the previous night. It is difficult to assess overall losses due to road kills but it is obvious that they are significant.

A few landowners stated that Burrowing Owl numbers increased during the late 1970's. The loss of many stock pastures to cultivation has resulted in the birds nesting in farmyard pastures. These pastures are usually less than 10 ha and

adjoin farm buildings. These pastures are seldom incorporated into the larger grain fields. When the owls return each spring, nest site availability is almost guaranteed in these pastures. In 1982, 41 of the 76 pairs were located in this habitat. Instead of Burrowing Owls increasing in numbers there may have been a population shift to more stable pastures, and the owls present are now more readily observed by the landowner.

When this survey was started in 1982, I had no idea how many Burrowing Owls would be located. When 76 pairs were found that year I was pleased because it was consistent with the 100 pairs that Wedgwood had estimated for Manitoba in his COSEWIC report.¹³ As Table 1 indicates, the number of pairs located dropped by more than 50 percent during this survey. The major reason for this decline was the weather. On 12 May 1983, a severe storm left up to 20 cm of snow and ice on the ground in western

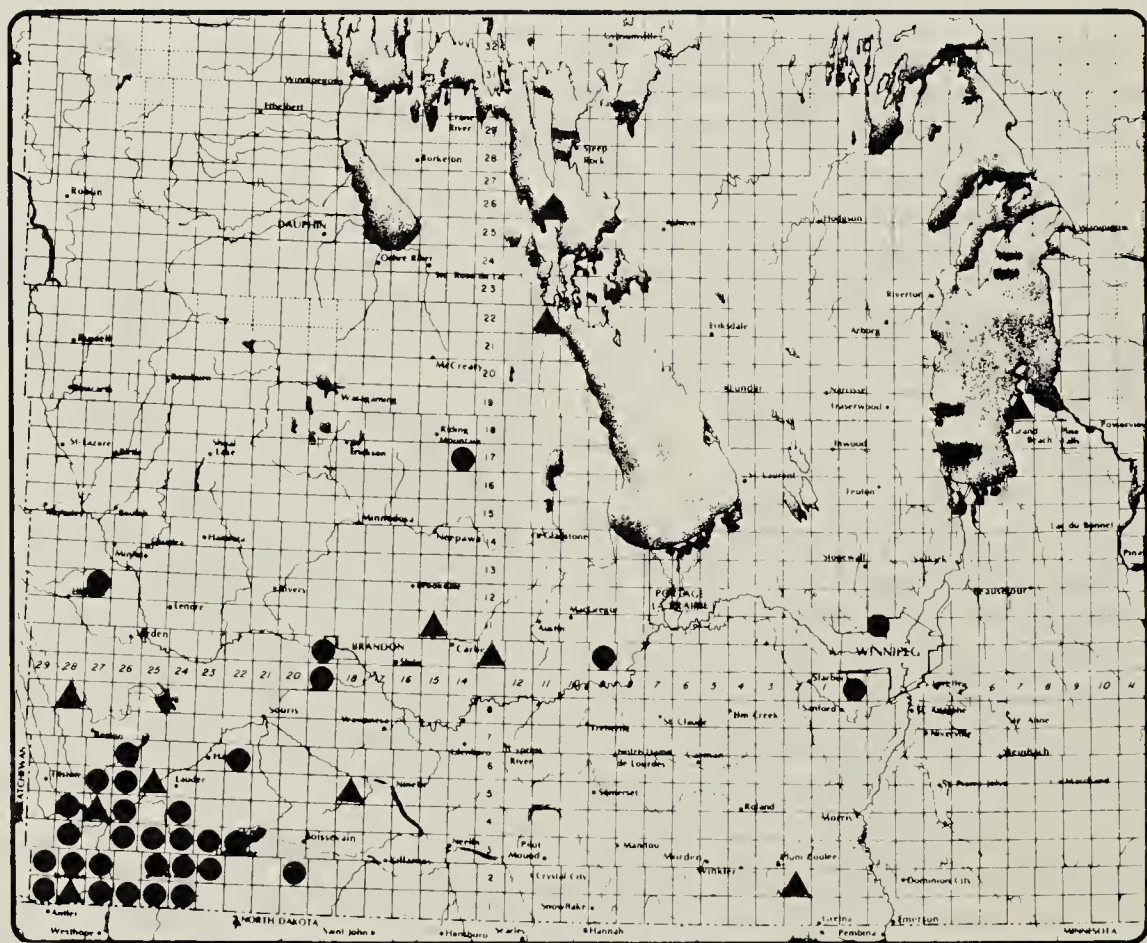


Figure 2. 1982 Burrowing Owl site distribution. ● Township with one or more pairs. ▲ Township with sighting of adult owl.

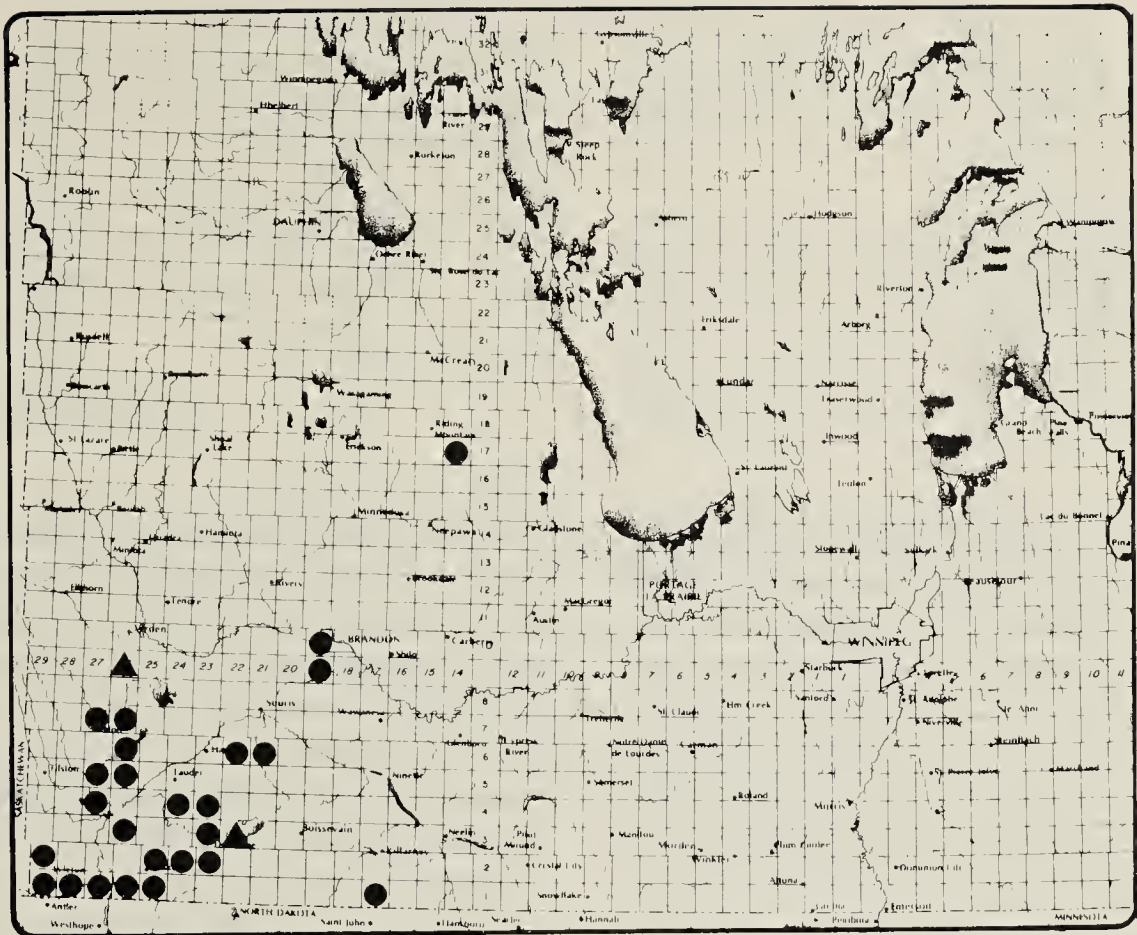


Figure 3. 1983 Burrowing Owl site distribution. ●Township with one or more pairs.
 ▲Township with sighting of adult owl.

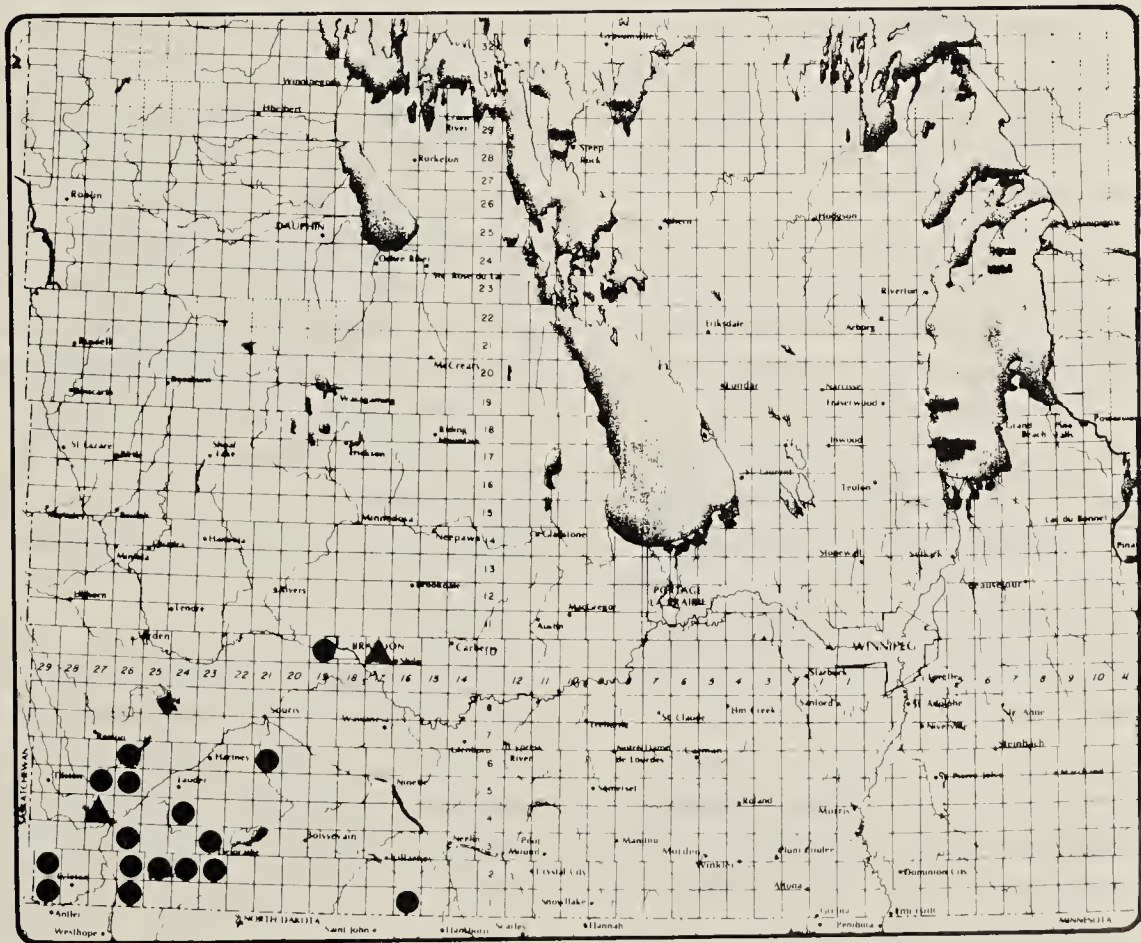


Figure 4. 1984 Burrowing Owl site distribution. ●Township with one or more pairs.
 ▲Township with sighting of adult owl.

Table 1. DATA FROM MANITOBA BURROWING OWL SURVEY

	1982	1983	1984
Burrowing Owl pairs	76	60	35
Successful breeding pairs	55	30	27
Single adults observed	24	17	7
Young owls observed	204	96	142
Average brood size	3.7	3.2	5.3
Total owls observed	380	233	219
Owls banded	102	60	101

Manitoba. One landowner knocked the ice crust off the burrow entrance after failing to observe the owls for 3 days. Within 15 minutes both owls were standing at the burrow entrance. Mid-May is when the owls start their egg laying and incubation. The cold temperatures disrupted embryo development of the eggs and nest success was only 50 percent in 1983 compared to 72 percent in 1982. The total number of young observed was 53 percent less in 1983 than in 1982. This low recruitment resulted in only 35 pairs of owls being located in 1984. Whether the owls can rebound and build their population back up will only be known with future monitoring programs. Figs. 2,3 and 4 show the 1982,1983 and 1984 Burrowing Owl distribution in Manitoba.

The average brood size for this study was 4.1. This number is comparable to 4.6 in Saskatchewan, 4.2 in western Minnesota, 4.9 in New Mexico and 2.2 in California.^{12 4 8 11} The increase from 3.2 in 1983 to 5.3 in 1984 was attributed to a marked increase in grasshoppers as a food source. Grasshopper populations have been increasing during the past few years and this increase has enabled more young owls to reach fledging age.

Burrowing Owls return from their wintering grounds in April and by the first week of May have established pair bonds and secured territories. The incubation period is 28-29 days and the young emerge from the burrow approximately

10 days after hatching. The first appearance of young owls was 18 June with 1 July as the average date. The owls were then watched for 2-3 weeks to determine complete brood size. Then the owls were banded. Ten adults and 253 young owls were colour-banded during this survey. A young owl banded near Waskada, Manitoba on 7 July 1982 was found dead on the side of the road near San Antonio, Texas, on 15 October 1982. The owl was decomposed and the person who found it assumed it had been dead for about a week. The landowner in whose pasture this owl was raised informed me that there were still owls in the pasture during the first week of September. It appears that the owl took 4-6 weeks to fly the 2200 + km from Manitoba to Texas. This is only the second band return that gives us some indication of the owl's migration route and wintering area. The other band return was from an owl banded by A.B. Gresham at West Kildonan, Manitoba on 31 July 1926 and shot at Spalding, Nebraska on 24 September 1927.⁹ It is my opinion that Burrowing Owls that breed in Manitoba winter in Mexico.

The Manitoba Burrowing Owl survey was the first in-depth attempt to document the status and distribution of the owl in the province. There is now better understanding of the owl's provincial status.

This survey was public-orientated, designed to draw attention to the pro-

blems this bird is encountering. Since all of the nests were located on private land, protection of the owls must involve landowners. The positive response showed by landowners to this survey and to the owls suggests that this approach is probably the best management plan at the present time.

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- ⁹ NATIONAL PARKS OF CANADA 1928. Official Canadian record of bird banding returns. *Can. Field-Nat.* 42:156.
- ¹⁰ TATE, J. 1981. The decade list and the 1981 blue list. *Am. Birds* 35:3-10.
- ¹¹ THOMSEN, L. 1971. Behavior and ecology of Burrowing Owls on the Oakland Municipal Airport. *Condor* 73:177-192.
- ¹² WEDGWOOD, J.A. 1976. Burrowing Owls in south-central Saskatchewan. *Blue Jay* 34:26-44.
- ¹³ WEDGWOOD, J.A. 1978. The status of the Burrowing Owl in Canada. A report prepared for the Committee on the Status of Endangered Wildlife in Canada. Can. Wildl. Serv. 84 pp.
- ¹⁴ ZARN, M. 1974. Burrowing Owls. U.S. Dept. Inter., Bur. Land Man. Tech. Note T-N-250, Denver, Colo. 25 pp.

DUCK BANDING IN AUGUST NEAR KINDERSLEY, SASKATCHEWAN 1983-1985

ELWOOD M. MARTIN, Wildlife Biologist, Migratory Bird Management Office, U.S. Fish and Wildlife Service, Laurel, Maryland. 20708

On a project cosponsored by the U. S. Fish and Wildlife Service (USFWS) and the Canadian Wildlife Service, for the past 3 years I have spent the month of August trapping and banding ducks near Kindersley, Saskatchewan. During the course of this work, several interesting observations have been recorded.

The banding crew consisted of myself and one assistant each year. We banded ducks on several lakes 7 to 12 mi. west

of Kindersley and on that part of Teo Lake 3 to 5 mi. southeast of Smiley. Teo Lake was our best area, and all the species of ducks we saw were recorded there at least once, with several being recorded only from that location. It was the largest and deepest of the water bodies we checked regularly. Traps baited with wheat were used, so the species we caught were primarily those attracted to this grain. However, every species of duck we observed in this area, even

Table 1. SUMMER DUCK BANDING NEAR KINDERSLEY, SASKATCHEWAN 1983-1985

Species	1 Aug - 1 Sep	31 Jul - 4 Sep	31 Jul - 31 Aug	Total
	1983	1984	1985	
*Mallard	1,131	2,323	919	4,373
*Northern Pintail	1,316	478	632	2,426
*Blue-winged Teal	416	344	652	1,412
*Gadwall	248	116	482	846
*American Wigeon	78	66	163	307
*Green-winged Teal	96	92	7	195
*Redhead	58	92	37	187
*Lesser Scaup	22	30	83	135
*Canvasback	12	32	50	94
*Ruddy Duck	1	7	32	40
Bufflehead	2	3	1	6
*Northern Shoveler	0	2	2	4
Hooded Merganser	1	0	2	3
*White-winged Scoter	0	0	3	3
American Black Duck	1	1	0	2
Common Goldeneye	1	0	0	1
Barrow's Goldeneye	1	0	0	1
Mallard x Am. Black Duck	0	1	0	1
Mallard x Northern Pintail	0	1	0	1
TOTALS	3,384	3,588	3,065	10,037

* Species known to nest, based on capture of flightless young.

those not known to be interested in grain, has turned up in our traps. In fact, we were unaware of the presence of several species until they were trapped even though we were afield 7 days a week, often over 8 hours a day, and were constantly alert to all bird life around us, as evidenced by my bird list of 157 species for these periods in the Kindersley area.

We banded 10,037 ducks near Kindersley in three seasons (Table 1). Undoubtedly our most noteworthy find was in 1983. We had noticed several goldeneyes on Teo Lake when we arrived, so I was not too surprised when we caught a molting adult male Common Goldeneye on 20 August. However, imagine my amazement on 28 August when we caught a second goldeneye; I held out a wing to look at the upper surface for a preliminary determination of the bird's age and sex, and discovered I was holding a first-year male Barrow's Goldeneye. (Looking at the wings as a quick way to assess species, age and sex is a habit developed after over 15 years of identifying ducks from the wings

received in the USFWS Duck Wing Survey of U. S. waterfowl hunters. Also, the goldeneyes have been of special interest to me, and I worked closely with S. M. Carney while he perfected the technique for identification of goldeneyes using wing characters.¹) It took me a moment to recover from the shock of this discovery. Then I banded the bird and before releasing it, took half a dozen pictures.

I realised that the Barrow's Goldeneye must be very rare or accidental in this area and reported it to the regional editor of *American Birds* who then included it in his report.³ Since then I have learned just how rare this species is in Saskatchewan. This appears to be the first record documented by photographs, preceding the photographs obtained by Escott on 10 October 1983 by 43 days.² This experience has also made me more cautious in my sight identifications of goldeneyes. When I saw a distant goldeneye on Teo Lake this past August (1985) which appeared to have a high forehead and smallish bill in profile, I



Barrow's Goldeneye, 28 August 1983

Elwood Martin



Barrow's Goldeneye *Elwood Martin*

recorded it as goldeneye species rather than simply wondering briefly about its odd appearance and automatically checking off Common Goldeneye as I would have done before. I agree with Escott that the Barrow's Goldeneye may not be as rare as the records indicate.² With any species, most encounters away from their normal range are with immature birds or, if in summer, with adults which may travel some distance to molt. The identification of such birds can be difficult even under the best of conditions.

We caught several other ducks not expected in the Kindersley area very often, if at all. They include a second year male Hooded Merganser at Teo Lake on 5 August 1983, a first year male Hooded Merganser on a lake about 10 mi. west of Kindersley on 31 July 1985, a second year female Hooded Merganser on the same lake on 13 August 1985, and adult

male Black Ducks on Teo Lake on 1 September 1983 and 17 August 1984. On 14 August 1985 we caught three large but still mostly downy White-winged Scoters at Teo Lake, our first indication that this species was present. We caught one or more of them several more times during the month and saw their mother a few times but never saw more than four birds at once, apparently the only family on the lake. Stuart Houston tells me that this is the first report of nesting for this area of which he is aware though the species has been reported from Teo Lake at least once before according to his files. We have confirmed, based on the capture of birds too young to fly, that at least 12 of the 17 species we have observed on Teo Lake have nested there at least once during the past 3 summers (Table 1). More work will undoubtedly increase this August list. A prime candidate for addition to both species and breeding bird lists is the Cinnamon Teal.⁴ It is apparently recorded here with some regularity earlier in the year but by August the problem of distinguishing it from the much more common Blue-winged Teal, even in the hand, is one we have some doubts about and are still struggling with. I hope to return next August to continue the struggle and see what surprises the new season holds for me. I thank Stuart Houston for his advice and assistance in the preparation of this report.

¹ CARNEY, S.M. 1983. Species, age and sex identification of nearctic goldeneyes from wings. *J. Wildl. Manage.* 47(3):754-761.

² ESCOTT, C.J. 1984. Barrow's Goldeneye in Saskatchewan. *Blue Jay* 42(2):89-90.

³ HARRIS, W.C. 1984. Prairie Provinces region. *Amer. Birds* 38(2):214-216.

⁴ HOUSTON, C.S. 1984. Kindersley. Pages 94-95 *IN* Finlay, ed. A bird-finding guide to Canada. Hurtig, Edmonton. 387 pp.

ADDITIONAL OBSERVATIONS OF THE BARRED OWL IN ALBERTA

PETER C. BOXALL, Alberta Fish and Wildlife Division, Main Floor, North Tower, Petroleum Plaza, 9945 - 108 Street, Edmonton, Alberta. T5K 2G6

Previous reports on the distribution of Barred Owls in Alberta have suggested a recent expansion into western North America.^{1 3 8 9} In Alberta, Barred Owls seem to be restricted to mixedwood boreal forest and mature foothill forests in the southern portion of the province.¹ Numbers of this species are hypothesised to be increasing largely due to an increased tolerance of forests of a predominantly coniferous character. This selection of habitats in western North America is contrary to its preference for deciduous or mixed transitional forest in eastern North America.^{7 2} This report documents further records of the Barred Owl in Alberta and serves to update an earlier paper. The majority of these recent records were gathered from the Alberta Fish and Wildlife Division's Occurrence reporting system. This system developed and operated by the Enforcement - Field Services Branch, is called the Animal Incident Documentation System (A.I.D.S.). It is used to document observations of rare species, wildlife species found dead, various forms of human-wildlife interactions (e.g. bear attacks), and illegal activity pertaining to wildlife. This system has been in operation since April 1982. Additional records of Barred Owls were gathered from Christmas Bird Counts, and casual reports from naturalists.

Fifteen Barred Owl specimens have been turned into the Fish and Wildlife Division (Table 1). Another eight owls were given to the Division with no locations provided. Of the 23 specimens, 19 were simply found dead by officers or

citizens; 3 were injured and subsequently died and one owl was orphaned and did not survive to independence.

The geographical distribution of the records in Table 1 is similar to those reported by Boxall and Stepney, with the exception of one owl found near Coronation.¹ This particular bird was found dead in the prairie-parkland ecotone during winter and may have been moving widely in search of food before starving to death or possibly being killed by an automobile. The cause of death for this owl was unknown. All of the other records fall within the montane-foothill region or the mixedwood boreal forest.

The possible expansion of this species southward through the mountain and foothill areas of Alberta is supported by an increase of recent records from the southwestern portion of the province.¹ The Fish and Wildlife Division obtained owls which were found near Morley and Calgary (Table 1). Naturalists have reported other sightings of Barred Owls from Morley, Calgary and Bryant Creek in 1982; the Wildlife Reserve of Western Canada near Cochrane in 1983; and Calgary in 1984.^{4 6 5} Prior to 1980 I found only 12 records of this species south of Jasper National Park.¹

Naturalists also reported observing Barred Owls around Grande Prairie and Edson.^{5 10}

Of all owls reported or turned in to the Alberta Fish and Wildlife Division, Barred Owls were the second fewest in

Table 1. BARRED OWL RECORDS FORM THE ALBERTA FISH AND WILDLIFE DIVISION'S ANIMAL INCIDENT DOCUMENTATION SYSTEM APRIL 1982 TO APRIL 1985

Date	Location
10 September 1982	Grande Cache
1 December 1982	Fox Creek
9 February 1983	Fox Creek
3 March 1983	Slave Lake
9 June 1983	Edmonton
30 June 1983	St. Albert
19 July 1983	Morley
15 December 1983	Grovedale
4 January 1984	Calgary
10 February 1984	Coronation
4 April 1984	Niton Junction
6 December 1984	Rocky Mountain House
15 January 1985	Fox Creek
24 January 1985	Brule
19 March 1985	Whitecourt

An additional eight owls were turned in without locations.

TOTAL 15 + 8 = 23

number (Table 2). Only the Northern Pygmy Owl was reported less often over the 3-year period. Over 142 times as many Great Horned Owls were reported and about 10 times as many Snowy, Great Gray and Short-eared owls were reported.

Records of the Barred Owl in Alberta are still required in order to define its range. There is no doubt that it is one of the rarest owls in the province despite its large size and characteristic vocal behavior.

I thank Laverne Smith for assisting me with locating published records of this species.

¹ BOXALL, P.C. and P.H.R. STEPNEY. 1982. The distribution and status of the Barred Owl in Alberta. *Can. Field-Nat.* 96:46-50

² GODFREY, W.E. 1966. The birds of Canada. National Mus. of Can. Bull. No. 203.

³ GRANT, J. 1966. The Barred Owl in British Columbia. *Murrelet* 47:39-45.

⁴ HARRIS, W.C. 1983. Prairie Provinces region. *Am. Birds* 37:192-194.

⁵ HARRIS, W.C. 1984. Prairie Provinces region. *Am. Birds* 38:214-216.

⁶ HEILBRUN, L.H. and CBC REGIONAL EDITORS. 1983. The 1983 Audubon Christmas Bird Count. Count No. 157. *Am. Birds* 37:438.

⁷ NICHOLLS, T.H. and D.W. WARNER. 1972. Barred Owl habitat use as determined by radiotelemetry. *J. Wildl. Mgmt.* 36:213-224.

⁸ SHEA, D.S. 1974. Barred Owl records in western Montana. *Condor* 76:222.

⁹ TAYLOR, A.L. and E.D. FORSMAN. 1976. Recent range extensions of the Barred Owl in western North America, including the first records for Oregon. *Condor* 78:560-561.

¹⁰ YOUNG, V. 1984. Alberta Christmas Bird Counts - 1983. *Alberta Naturalist* 14:91-96.

Table 2. NUMBER OF SPECIMENS AND/OR REPORTS OF OWLS TO FISH AND WILDLIFE DIVISION, ALBERTA

<i>Owl Species</i>	<i>Number of Records</i>			<i>Total</i>
	<i>1982/83*</i>	<i>1983/84</i>	<i>1984/85</i>	
Great Horned	722	1,402	1,143	3,267
Snowy	63	62	120	245
Great Gray	101	74	56	231
Short-eared	65	69	87	221
Saw-Whet	26	26	35	87
Long-eared	23	20	39	82
Hawk	16	13	19	48
Burrowing	8	14	11	33
Boreal	10	7	15	32
Barred	7	10	6	23
Pygmy	1	6	3	10

* Fiscal years 1 April to 31 March



Barred Owl

Bob Turner

SOME OBSERVATIONS ON BREEDING BROAD-WINGED HAWKS

E. OTTO HOHN, 11511-78 Avenue, Edmonton, Alberta. T6G 0N4

In the years 1982 to 1984 a pair of Broad-winged Hawks nested on or near our acreage 40 km east of Edmonton, Alberta. The area consists of pasture and poplar woods in roughly equal proportion and contains small ponds and a marsh. The hawks were not observed early in the season from 1982-1984, but first spring sightings in other years in this area, 22 April 1977 and 29 April 1979, suggest that they arrive in late April.

In 1982 a Broad-winged Hawk was flushed from the acreage entrance on 1 May. It was carrying a garter snake in its talons. On 18 May a Broad-winged Hawk was seen near an unfinished stick nest in a tall poplar on the acreage. By the 29th this nest was larger and a hawk, evidently incubating, was on the nest. Though the bird was not disturbed this nest was abandoned by 4 June. On 12 June an unfinished nest, decorated with a sprig of green leaves, again in a poplar, was found about 200 m from the first nest and a Broad-winged Hawk was soaring above this new nest. It was further enlarged up to 18 June but after that date no hawk was seen in its vicinity. This, like the first nest, had evidently been given up for no obvious reason. Single Broad-winged Hawks were seen in the area until early August. I was away for most of the next month and so cannot report whether or not they stayed into September.

In 1983 a Broad-winged Hawk was first seen in this area 7 May. Near noon, it was soaring at a height of about 180 m over a poplar wood and adjacent pasture, repeatedly swooping down and climbing and finally diving almost vertically with

closed wings to disappear among the trees. Soon it flew up again accompanied by another hawk (presumably its mate) and the two engaged in similar though less spectacular soaring and swooping. This was evidently a courship flight such as I have only seen on this one occasion. As single Broad-winged were seen in the area after this date, a search was made for the nest, but it was not located until 5 June. A Broad-winged sailed out of an old nest well up in a Balsam Poplar when I tapped the tree trunk; it was in a wood separated from our acreage by a secondary road. Later visits showed that the bird was incubating. During five trips between 5 June and when young were first seen in the nest, the mate of the incubating hawk was seen only once, when it was perched about 10 m from the nest.

On 9 July the bird left the nest when I was still some 50 m away, instead of sitting tight as before; approaching closer, I could see the heads of two downy young. During the next four visits between 9 and 30 July there was always an adult hawk "on guard" in a tree at the edge of the nest wood. It would call continuously as long as I was in the area. On 30 July there was an adult on the nest which flew at my approach, returning to the nest only briefly (without delivering food) an hour later. On 4 August the two fully feathered young were perched a few m above the nest. Droppings, but no food remains, or pellets were found under the nest tree. In late August a sprig of green leaves on the first 1982 nest suggested that the hawks were possibly "working" on this nest for use in the

following year. A Broad-winged Hawk was last seen in the area 11 September.

I did not visit the area until late May in 1984. On 26 May a Broad-winged Hawk flushed from the second nest the birds had used in 1982. On the next two visits the hawk, which was evidently incubating, left the nest when I was still at some distance. After 10 June it sat tight. It sat noticeably higher in the nest on the 29th and I took this to mean that the young had hatched, 35 days after the bird had first been found incubating. During all visits to 8 July an adult was on the nest, presumably brooding the young. Subsequently the adult hawk was on guard near but not on the nest; it called as long as I was in view but became silent 5-10 minutes after I had entered the blind set up some distance from the nest tree. Occasionally the adult on guard would fly just below the canopy of the trees following more or less my movements on the ground.

On 23 July remains, consisting of feathers, some of the intestine and the skull of a Northern Shoveler were found on the ground about 100 m from the nest tree. A few days later the corpse of a Mallard, from which most of the breast had been taken was found lying breast-up on the shore of our dugout pond (somewhat nearer to the nest). As duck breast feathers were found beneath the nest tree about this time it would appear that these two ducks may have been killed by the Broad-winged Hawks. Other prey brought to the nest by the adult not on guard (which never stayed at the nest for more than 30 seconds) were mice and voles. Fur of these made up the pellets found beneath the nest tree where tail feathers of a robin were also found.

On 29 July one of the young was perched a few m above the nest and on 2 August a flight of about 40 m was made. From then until the end of August, the young remained within 1-150 m of the



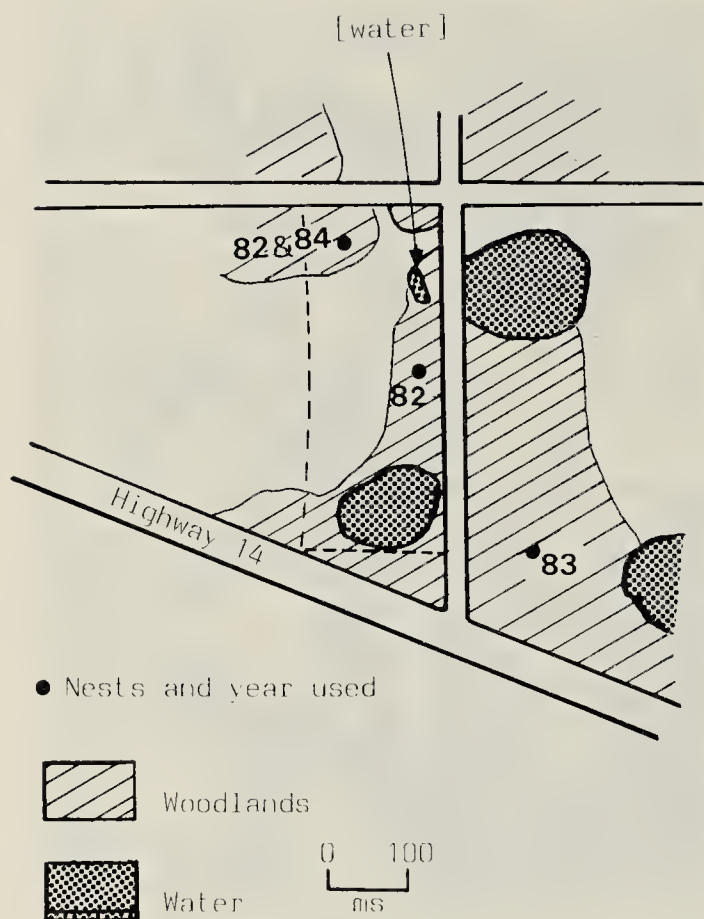
Young Broad-winged Hawk above nest, July 1984
E.O. Hohn

nest. The adult which was near called continuously while I was in view, but the young generally remained silent and were more difficult to locate. The adults accented the second syllable of their "pee-ee" call, while the young did not.

On 5 September 1984 about noon, first two, then three Broad-wingeds were soaring over the area to drift off to the southwest until out of sight. At least one of the three was a young of the year. Apparently the hawks left the area as a family (none were seen later that year) and probably migrated together.

Discussion

The findings reported above indicate that during the early phase of incubation the hawk generally left the nest on the approach of an observer but sat tight when incubation was advanced. This was evident in 1984; in 1983 incubation was evidently already advanced when the nest was found. The incubation period



Sketch showing Broad-winged Hawk nests 1982-1984 in relation to woodland and water bodies

has been reported as “probably 28 days or longer.”¹ The young had probably hatched somewhat before the 35 days apparent from the observations, but had not affected the adult’s brooding posture while they were still very small.

After hatching, one adult (most probably the female) remained on guard near the nest and after the young had left the nest it remained near them. The second adult continued to do most or all of the hunting as it had done during incubation. The ducks apparently captured by this hawk are large prey; the largest previously recorded prey for this hawk appears to be the Ruffed Grouse.^{3 4}

The three nests varied in (estimated) height between 14 and 16 m and the tree diameter at breast height was between 23 and 41 cm. These figures fall within the ranges of data presented by Rosenfeld.²

The two species used were the only ones of adequate size available in the area.

Studies in the Appalachians and in Wisconsin found that compared to a random sample of the available forest area, Broad-winged Hawks nested close to water and to forest clearings.^{5 2} The accompanying sketch map shows the location of the three nests in the study area, all near a forest edge and near standing water.

- ¹ MATRAY, P.F. 1974. Broad-winged Hawk nesting and ecology. *Auk* 91(2):307-323.
- ² ROSENFELD, R.N. 1984. Nesting biology of Broad-winged Hawks in Wisconsin. *Raptor Research* 18(1):6-9.
- ³ ROSENFELD, R.N. and M.W. GRATSON. 1984. Food brought by Broad-winged Hawks to a Wisconsin nest. *J. of Field Ornith.* 55(2):246-247.
- ⁴ RUSCH, D.H. and P.D. DOERR. 1972. Broad-winged Hawk nesting and food habits. *Auk* 89(1):139-145.
- ⁵ TITUS, K. and J.A. MOSHER. 1981. Nest site habitat selection by woodland hawks in the central Appalachians. *Auk* 98(2):270-281.

GREAT GRAY OWL BADGES

The Blue Jay Bookshop, P.O. Box 1121, Regina, Saskatchewan S4P 3B4 has a supply of **Great Gray Owl** badges which they are selling to help raise money for the telemetry experiments, tracking of Great Gray Owls in Manitoba, supervised by Robert W. Nero. The badges are \$2.75 postpaid. \$2.00 from this goes towards the funding of the projects.

EASTERN SCREECH-OWL NEAR YORKTON

This Eastern Screech-Owl was photographed on section 3-T26-R2-W2nd in December 1985. (About 11 mi. e Yorkton, Saskatchewan)

It is sitting on an evergreen sunning itself. It shows up fairly regularly in this farmyard and spends the whole day sitting in the sun and out of the wind apparently sleeping

I waved my arms, clapped my hands, jumped up and down and yelled but it never once opened its eyes for a picture

The day this picture was taken the thermometer was in the low 20's [°F] and I imagine you all know how cold fingers can get while operating a camera. I froze three finger tips which peeled until mid-January, but I did get a bunch of pretty good slides. This photograph was taken with Ektachrome 64 film and a 500 mm Tamron mirror lens

To the best of my knowledge this is the most northerly record of a Screech-Owl in Saskatchewan. — *Warren Hjertaas*, 510 Circlebrooke Drive, Yorkton, Saskatchewan. S3N 2Y3



Eastern Screech-Owl Warren Hjertaas

EDITOR'S NOTE: The color photograph shows the owl is a red phase Eastern Screech-Owl. The red phase does not occur in the Western Screech-Owl, although some are brownish. The Western Screech-Owl also usually has a dark bill whereas that of the Eastern is usually pale. The bird in the photograph has a pale yellowish bill. In the late 70s a screech-owl was recorded at McBride Lake, Saskatchewan, which is about 100 mi. n Yorkton.

INFORMATION WANTED — WHOOPING CRANE SIGHTINGS

The Canadian Wildlife Service is establishing a reporting and monitoring program to document Whooping Crane stopovers in the prairies during spring and fall migration. This information will help the C.W.S. to identify, describe and protect critical habitat.

Anyone who suspects that they have seen a Whooping Crane is asked to call the **Whooping Crane Hot Line** at (306) 975-5595 (a 24-hour answering service).

For more information, please contact: **Brian W. Johns, Canadian Wildlife Service, 115 Perimeter Road, Saskatoon, Saskatchewan. S7N 0X4**

SASKATCHEWAN CHRISTMAS MAMMAL COUNT — 1985

Compiled by WAYNE C. HARRIS, Box 414, Raymore, Saskatchewan. S0A 3J0

A total of 62 counts were received this year reporting 32 species during the count period. The number of counts exceeds the previous high of 55 received in 1983 while the total number of species is two less than the record high reported last year.

There were no new species reported this year. There were, however, several rare species reported. Fox Squirrels were again found at Regina and Weyburn, the latter having seven seen and eight nests found. Both Fisher and River Otter were seen at Prince Albert National Park and a Richardson's Ground Squirrel was found at Moose Jaw. The report of Timber Wolves near Indian Head is well south of the normal range of this species.

From a population viewpoint Mink seem to have recovered from last year's low and were the only species to show a significant increase over last year. Far more species showed decreases including White-tailed Jack Rabbit (down from last year's already decreased populations), Porcupine, White-tailed Deer and Pronghorn. The last two may very well be a result of the severe winter last year, however no plausible explanation can be found for the other two. The White-tailed Deer populations were most notably down in central Saskatchewan and holding their own in the southwest as were Mule Deer, of which 182 individuals were seen on the Fort Walsh count. Very encouraging was the report of 11 Moose at Loon Lake where Moose populations have been quite low for close to 10 years.

For weather, coverage and participants on these counts please refer to the Christmas Bird Counts found in this issue. Symbols found in the tables are as follows:

- * identified by tracks with estimated number of individuals in parentheses
- + seen during count period but not on count day
- L active lodges or huts seen with number in parentheses
- N nests found with number seen in parentheses
- D fresh diggings seen
- d freshly dead animals seen



Long-tailed Weasel

Lorne Scott

Table 1-1. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

SPECIES	LOCALITY & DATE	ARDATH - OUTLOOK December 20	ASSINIBOIA January 04	BANGOR December 26	BIGGAR December 28	BIG GULLY CREEK January 05	BIRCH HILLS December 23	BRIGHTWATER RESERVOIR December 27	BROMHEAD December 30	CROOKED LAKE December 26	DALMENY December 30	DILKE December 29
SHREW species				*(3)								
RACCOON									+			*
RED FOX			7					*(1)	1	1		
COYOTE		*(2)				2	1	1	+			
TIMBER WOLF												
FISHER												
ERMINE										1		
LEAST WEASEL				1								
LONG-TAILED WEASEL				1								
WEASEL species						*(2)			+			
MINK						*(1)				*(1)		
RIVER OTTER												
STRIPED SKUNK		S(1)	1						*(1)			
BADGER			3	1								
WHITE-TAILED JACKRABBIT		1	21			*	*(6)		5			*
SNOWSHOE HARE					2	*	*(3)	1		1	1	
NUTTALL'S COTTONTAIL												
RICHARD. GROUND SQUIRREL												
FOX SQUIRREL												
RED SQUIRREL						17	4			2		
NORTHERN FLYING SQUIRREL												
BEAVER						L(2)						
DEER MOUSE												
MEADOW VOLE									*(2)			*
MOUSE species					*(2)	*	*(1)		*(7)	*(1)	1	
MUSKRAT												
NORWAY RAT												
HOUSE MOUSE												
PORCUPINE		1							2			*(1)
ELK												
MULE DEER			1			*(7)						
WHITE-TAILED DEER		3	40	*(3)	2	8			77			
DEER species												
MOOSE												
PRONGHORN			8									
TOTAL SPECIES		5	7	5	3	10	6	2	10	5	3	4

Table 1-2. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

SPECIES	LOCALITY & DATE	DUCK MOUNTAIN December 19	DUVAL December 29	EASTEND December 30	ENDEAVOUR December 25	FORT QU'APPELLE December 21	FORT WALSH December 18	GARDINER DAM December 20	GLAMIS - WISETON December 27	GOOD SPIRIT LAKE December 22	GOVENLOCK December 19
SHREW species										+	
RACCOON											
RED FOX		*(2)	*(1)				*(1)		+		1
COYOTE		+	*(1)	*(1)			*(20)	8	*(1)	*(3)	2
TIMBER WOLF											
FISHER											
ERMINE											
LEAST WEASEL					*(5)						
LONG-TAILED WEASEL						+				1	
WEASEL species		*(5)	*(2)				*(1)	*(1)			*
MINK		+			*(1)					+	
RIVER OTTER											
STRIPED SKUNK										+	D(1)
BADGER											1
WHITE-TAILED JACKRABBIT			*(3)	2			4	3	*	+	1
SNOWSHOE HARE		*(2)	*(2)		*			*(1)		*(9)	
NUTTALL'S COTTONTAIL							3	1	1		8
RICHARD. GROUND SQUIRREL											
FOX SQUIRREL											
RED SQUIRREL		H(1)			3	7	42			4	
NORTHERN FLYING SQUIRREL										1	
BEAVER			L(1)			1				L(2)	L(1)
DEER MOUSE		*(1)				+					
MEADOW VOLE						+					
MOUSE species		*(10)	*(2)				*(5)	*(3)		+	*
MUSKRAT			L(3)			+		1		*(2)	
NORWAY RAT											
HOUSE MOUSE											
PORCUPINE					D(1)		2	2	1	*(3)	1
ELK							14				
MULE DEER				9			182	2			19
WHITE-TAILED DEER		*(10)	3	35	*(2)	+	77	3	*(1)	*(9)	41
DEER species											
MOOSE		*(3)			*(2)		*(2)				
PRONGHORN											66
TOTAL SPECIES		9	8	3	8	7	12	10	6	12	12

Table 1-3. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

LOCALITY & DATE										SPECIES
GUERNSEY December 16	HERBERT January 01	HUMBOLDT December 26	INDIAN HEAD December 29	KAMSACK December 18	KENASTON January 03	KINDERSLEY January 01	KINDERSLEY January 01	KUTAWAGAN LAKE January 01	LAKE DIEFENBAKER January 01	SHREW species
										RACCOON
			1		*(15)	+		*(1)	*	RED FOX
1	*(4)	+	4	2	*(2)			*(1)	1	COYOTE
			?3							TIMBER WOLF
										FISHER
								*(3)		ERMINE
			*(1)							LEAST WEASEL
			1	1						LONG-TAILED WEASEL
										WEASEL species
							*(1)			MINK
										RIVER OTTER
					+					STRIPED SKUNK
	*(1)									BADGER
	*(15)	+	21	2	*(5)	*	1	*(3)		WHITE-TAILED JACKRABBIT
		+	5		1		+			SNOWSHOE HARE
	1				*(5)					NUTTALL'S COTTONTAIL
										RICHARD. GROUND SQUIRREL
										FOX SQUIRREL
			20	2						RED SQUIRREL
										NORTHERN FLYING SQUIRREL
				1						BEAVER
										DEER MOUSE
		1						*(2)		MEADOW VOLE
*										MOUSE species
				1						MUSKRAT
										NORWAY RAT
										HOUSE MOUSE
		*(1)		3		+	+			PORCUPINE
										ELK
	*(3)								1	MULE DEER
		*(2)	18	7					1	WHITE-TAILED DEER
										DEER species
				2						MOOSE
										PRONGHORN
1	5	6	9	9	6	3	3	5	6	TOTAL SPECIES

Table 1-4. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

SPECIES	LOCALITY & DATE	LA RONGE December 28	LAST MOUNTAIN LAKE January 02	LEADER December 27	LITTLE BEAR LAKE January 01	LIVELONG December 22	LOON LAKE January 05	LOVE - TORCH RIVER December 31	LUSELAND January 05	MAIDSTONE BRIDGE January 04	MELFORT January 05
SHREW species											
RACCOON											
RED FOX		*(2)	*(1)					*(1)	1	*(1)	
COYOTE		*(1)	2	H(1)	*(1)		1	*(1)	*(4)	3	
TIMBER WOLF								*(1)			
FISHER											
ERMINE		*(4)								1	
LEAST WEASEL											
LONG-TAILED WEASEL										1	
WEASEL species			*							*(2)	
MINK		*(1)			*(1)			+		*(1)	
RIVER OTTER											
STRIPED SKUNK										*(1)	
BADGER											
WHITE-TAILED JACKRABBIT			7	2		1		*(2)	3	*(5)	
SNOWSHOE HARE		*(6)			*(1)				*(16)	3	
NUTTALL'S COTTONTAIL				2							
RICHARD. GROUND SQUIRREL											
FOX SQUIRREL											
RED SQUIRREL		4				1		2		2	5
NORTHERN FLYING SQUIRREL											
BEAVER										L(3)	
DEER MOUSE											
MEADOW VOLE											
MOUSE species		*(6)							*(6)		*
MUSKRAT			*							*(1)	
NORWAY RAT											
HOUSE MOUSE											
PORCUPINE						+			*(1)		
ELK											
MULE DEER				4			20			2	
WHITE-TAILED DEER		*(1)	3	10			24	2	*(2)	3	
DEER species											
MOOSE							11	*(2)			
PRONGHORN				22							
TOTAL SPECIES		8	6	6	3	3	4	8	7	13	2

Table 1-5. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

MOOSE JAW December 26	NAICAM January 04	NIPAWIN December 23	PIKE LAKE January 04	PINE CREE REGIONAL PARK December 22	PRINCE ALBERT NATIONAL PARK December 19	RAYMORE December 26	REGINA December 26	ROSCOMMON December 26	ROUND LAKE January 04	LOCALITY & DATE SPECIES
						*				SHREW species
									1	RACCOON
	1	*(3)	*(1)	*(1)	1	1	2	*(1)		RED FOX
	*(2)	*(1)	*(5)			2	*(1)	*(1)	*(9)	COYOTE
					H(4)					TIMBER WOLF
					*(1)					FISHER
						1				ERMINE
									*(6)	LEAST WEASEL
*(1)			*(2)			1			*(4)	LONG-TAILED WEASEL
	*(3)			*(2)	*(4)	*(3)				WEASEL species
									*(3)	MINK
					3					RIVER OTTER
						*(1)	S(1)			STRIPED SKUNK
						D(1)				BADGER
			*(2)	1		*	*	*(1)	*(1)	WHITE-TAILED JACKRABBIT
	*(10)		2	*(4)		*	1		*(6)	SNOWSHOE HARE
				*(20)						NUTTALL'S COTTONTAIL
*(1)										RICHARD. GROUND SQU
							*(1)			FOX SQUIRREL
			1		2	1	6		2	RED SQUIRREL
										NORTHERN FLYING SQUIRREL
		*(1)		1						BEAVER
	2					1		1		DEER MOUSE
						1				MEADOW VOLE
			*(2)	*(8)	*(3)	*	*(1)		*(20)	MOUSE species
						L(17)				MUSKRAT
						*				NORWAY RAT
						1				HOUSE MOUSE
	*			2		*			1	PORCUPINE
					2					ELK
				9						MULE DEER
*(4)	*(10)	3	2	6	D(1)	12			*(20)	WHITE-TAILED DEER
							*(1)			DEER species
										MOOSE
										PRONGHORN
3	7	4	8	9	9	17	9	4	11	TOTAL SPECIES

Table 1-6. SASKATCHEWAN CHRISTMAS MAMMAL COUNTS

SPECIES	LOCALITY & DATE	ST. WALBURG December 26	SASKATOON December 26	SCOTT January 02	SKULL CREEK January 05	SPRING VALLEY December 31	SQUAW RAPIDS December 24	WEYBURN December 22	WHITE BEAR December 28	WHITEBEECH January 01	WOLSELEY SOUTH January 01	YORKTON December 21	TOTAL NUMBER OF COUNTS PER SPECIES OR GROUP
SHREW species													3
RACCOON					*(1)								4
RED FOX						1		*(4)	+				30
COYOTE					*(2)	2	*(3)		+		+		38
TIMBER WOLF							*(2)						4
FISHER													1
ERMINE			1				*(2)						7
LEAST WEASEL								*(2)			*(1)		5
LONG-TAILED WEASEL											*(4)		11
WEASEL species													13
MINK						+	*(1)					*(1)	14
RIVER OTTER													1
STRIPED SKUNK						+							10
BADGER													5
WHITE-TAILED JACKRABBIT			1	*(5)	*	1		*(42)	2		+		40
SNOWSHOE HARE		1	3	*(1)			*	1		*(6)		*(6)	32
NUTTALL'S COTTONTAIL					7				+				10
RICHARD. GROUND SQUIRREL													1
FOX SQUIRREL								7					2
RED SQUIRREL			1		+		32					1	24
NORTHERN FLYING SQUIRREL													1
BEAVER							L(1)						10
DEER MOUSE													5
MEADOW VOLE			1										7
MOUSE species			1			*		*(5)				*(4)	21
MUSKRAT			2			+	L(2)					L(10)	12
NORWAY RAT													1
HOUSE MOUSE													1
PORCUPINE			1		1				+				22
ELK							*(3)			*(2)			4
MULE DEER								3	22				14
WHITE-TAILED DEER		+	7		65		4	*(12)		*(5)		*(2)	42
DEER species													1
MOOSE							2			1			8
PRONGHORN													3
TOTAL SPECIES		2	8	2	7	7	11	8	6	4	4	6	

WILD WEST

At the *Endangered Species in the Prairie Provinces Workshop* in Edmonton, on 25 January 1986 Monte Hummel, the president of the World Wildlife Fund (WWF) announced the offer of the WWF to make available about \$600,000 over a 3-year period to fund a conservation program in the Prairie Provinces. General guidelines can be taken from the *World Conservation Strategy* with its three global objectives:

- 1) "Maintain essential ecological processes and life support systems."
- 2) "Preserve the genetic diversity upon which the functioning of life support systems depends."
- 3) "The sustainable utilization of species and ecosystems which support millions of rural communities as well as major industries."

The program has already received unanimous approval from about 100 people chosen from all fields in the west who were contacted for discussion of the idea. The definition, control and direction taken by this Wild West program will be entirely done by western people. The Steering Committee will consist of representatives from the governments of Manitoba, Saskatchewan and Alberta, the federal government, agriculture, universities, business and non-government organizations which will control and direct the entire program along the lines of the *World Conservation Strategy*.

This program in western Canada is being sponsored by WWF because it has been recognised that this prairie area is a priority area — it is sensitive to desertification, it has numerous areas that are recognised as of world significance and it contains a concentration of endangered species and habitats. The WWF can help

us to get started over the first 3 years. From then on we must generate our own funding.

WWF and the Canadian Wildlife Service have produced a poster on Prairie Endangered Species which features a painting of a Swift Fox by Michael Dumas (about 60 x 86 cm or 24 x 34" with an information panel in additional 60 x 24 cm or 24 x 9.5"). This will be available to schools, and a quantity will be acquired by the SNHS. For further information write to the editor or the treasurer at **Box 414, Raymore, Saskatchewan. S0A 3J0.**

Copies of the original Discussion Paper by Monte Hummel, a summary of the Feedback from that paper, and the address given by Monte Hummel at the Endangered Species Workshop can be made available to members on request (same address). For further information on the World Wildlife Fund write to **WWF, 60 St. Clair Avenue East, Suite 201, Toronto, Ontario. M4T 1N5**

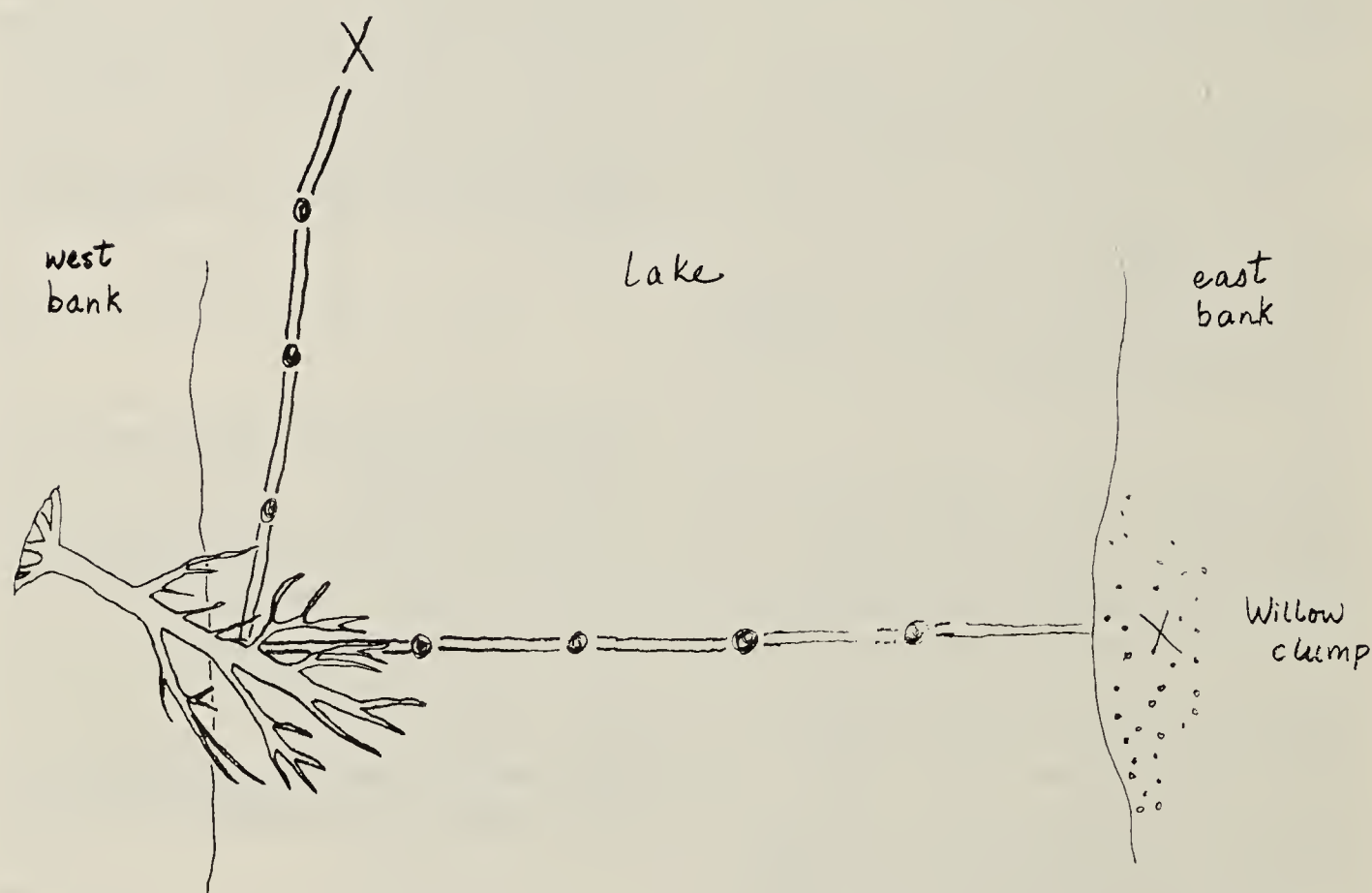


Swift Fox painting

Michael Dumas
Courtesy WWF

JUNIOR NATURALISTS

MYSTERY IN THE SNOW



The wildlife drama slowly unfolded as I collected more clues. A meeting had taken place between a predator and its prey. Here are the clues in the order that I found them on that cold January day in southern Manitoba.

Clue 1: Two straight furrows, resembling cross-country ski tracks, extended from one side of the snow-covered lake to the other, a distance of 75 m (fig. 1). Skis carve deep ruts in freshly fallen snow but these tracks were no

more than 1.5 cm deep. Other findings helped to disprove the ski theory. There were no pole marks and the parallel lines were interrupted every 10 or 15 m by shallow, nearly round depressions.

Clue 2: The furrows led to an uprooted poplar on the west bank. The animal rested here before turning north. Clumps of fur and bird droppings littered the trampled snow beneath the fallen tree.

Clue 3: The trail ran along the west bank for 50 m then came to an abrupt end. Part of a dead hare lay in the track.

Clue 4: Backtracking to the east bank, I found that the tracks originated in a stand of willows, where a second piece of a hare carcass was discovered.

Clue 5: There was only one Snowshoe Hare involved. The head, front legs and viscera remained on the east bank; the rest of the hare lay out on the lake.

Clue 6: Feather impressions were clearly outlined in the snow surrounding the front portion of the body. The feather marks belonged to a large bird, about the size of an owl.

With this last piece of information, the mystery was solved. The hare had been a victim of an owl attack.

The predator had fled from the kill site with only part of the prey in its grasp. The carcass was heavy enough to prevent the owl flying off with it; but the owl was able to lift it high enough to drag it across the lake. The two furrows were made as the hare's legs dragged behind in the snow. Circular, shallow depressions marked the spots where the owl had stopped to rest. Judging by the number of stops, the owl was having trouble carrying the heavy load.

The owl was feeding under the uprooted tree when I came along. A second attempt was made to flee with the fresh kill, but the owl finally gave up and abandoned the hare.

Why did the owl fly to the other side of the lake? A little bit of guess work is needed here. A coyote had been heard in the area earlier in the day. The owl may have had a bad experience with a

coyote, losing its food to the canine scavenger. Not to be cheated out of a meal again, the owl fled to the west bank.

When I reached the northern shoreline, I glanced back in the direction from which I had come. A Great-horned Owl was flying low over the lake. The next morning, when I returned to the spot where the owl had abandoned the hare, the carcass was no longer there but a 10 cm owl pellet was in its place.—

*Douglas Adams, 401-108th Street,
Saskatoon, Saskatchewan S7N 1R1*



Snowshoe Hare are an important source of food for Great Horned Owls

Photo by Hans Dommasch

A BIRDFINDING GUIDE TO THE REGINA AREA

CHRISTOPHER I.G. ADAM, THOMAS B. RIFFEL, ROBERT A. LUTERBACH and ROBERT H. KREBA. 1985. Special Publication No. 16 Saskatchewan Natural History Society, Box 1121, Regina, Saskatchewan. S4P 3B4 80pp. Paper \$4.00.

Saskatchewan's first regional birdfinding guide is, appropriately, for the Regina district. Often, the initial impression of the cultivated plains is of a region poor in species, whereas a richness of birds is to be found — if one is told what to look for and where, when and how to find them. This is the guide's aim. The four authors are from Regina's very active and respected corps of birdwatchers.

First, visitors and newcomers are offered suggestions for timing trips and hints on clothing, equipment, maps, brochures, country travel, contacts, accommodations and the weather. A briefing on the avian setting notes the birds typical of the primary habitats — farmlands, wetlands, grasslands and woodlands — and spotlights 47 prairie species the visitor will most likely want to see.

The well-coordinated and specific route descriptions and map delineations are a blessing — the stranger's frustration level should be minimal. Equally valuable is the keying system identifying birding sites and integrating text, maps and Specialty Locator (the appended section

on 120 most desirable species and where to locate them). Truly handy. Confining attention to selected species and prime bird places is another plus (only the appended status and abundance table, which includes all 316 reported species, departs from this focus). Sidestepping a pitfall in too many guides, routes are self-contained, reasonably short and direct, each serving only a few bird sites. (Just once is there departure from this principle, to the guide's detriment).

Reflecting the characteristics of prairie lands and the intensive cultivation on the Regina Plains, only four of the recommended birding spots are on vestigial grassland. Twenty-one are in natural prairie discontinuities — sloughs, lakes, valleys, creeks, coulees — and 31 are in man-made impoundments and urban settings. Both sorts of discontinuities concentrate species and numbers of birds, especially during migration. The surprisingly rich birdlife includes rarities, unusual stragglers and huge flocks, in addition to the species indigenous to the prairies. Certain concentration points are well known among local birders: the city's "Warbler Alley," Buck Lake with its flocks of Snow and Ross' Geese and shorebirds, Last Mountain Lake and its unusual arctic water birds.

This guide does not cover the same area as Margaret Belcher's *Birds of Regina* (1980); a third of the guide's 45 birding places are in the Qu'Appelle and Last Mountain Lake valleys although Manley Callin's *Birds of the Qu'Appelle* (1980) is not included in the bibliography.

The described route to Nicolle Flats is by back roads through the the Qu'Ap-

pelle Valley. Though more picturesque and interesting than by highway, it is longer (77 km or 48 mi.) and slower, and Nicolle Flats takes time to cover. The authors state that the trip makes a long day. The route could have been split, or reversed. The Specialty Locator has some curious errors or omissions in its Nicolle Flats column; for example, Black-headed Grosbeak is not on the list, thrush - only Veery is listed as present, shrikes and Burrowing Owls are given no status as present (the route description gives a colony location for the owls). Nicolle Flats is a first-class birding place, comparing favorably with the province's better known Emma Lake, Cypress Hills and Last Mountain Lake, it warranted more attention than it received.

From my experience with Burrowing Owls I disagree with the old saying that Burrowing Owls "sometimes dig their own burrows," that is given in the annotated list. Also, my survey of this owl's population in 1977 indicated more birds were found in the region northwest of Moose Jaw than in the area south of Regina which the authors state is the area where most are to be found.

The directions for the "Lily Field" southeast of the city omit to mention that the vantage point faces east and during early morning birding, the observer is likely to be working against the morning sun.

Regrettably the reproduction of the 14 habitat photographs is sub-standard. The bird sketches and photos are a welcome artistic touch, though weakened by poor reproduction. Fortunately, neither deficiency directly reduces the guide's usefulness. Where compactness is a virtue, the guide is larger than necessary in some cases through waste of space in layout. The maps are quite usable, but ease and confidence in reading them could have been even better had the printer proffered advice on contemporary

graphics techniques.

This booklet is a useful information source and a practical guide. Visitor and resident, old-hand or neophyte, should find it a pleasure to use. Some of the routes would be interesting scenic trips for the non-birder, and the birding descriptions and species commentary would be enjoyable reading for the arm-chair birder. — Reviewed by *Jim A. Wedgwood*, 610 Leslie Avenue, Saskatoon, Saskatchewan. S7H 2Z2

THE WONDER OF CANADIAN BIRDS

CANDACE SAVAGE 1985 Western Producer Prairie Books, Saskatoon, Saskatchewan. Foreword by Roger T. Peterson. 30 x 25 cm (9 x 11 in.) 211 pp., 100 color photos, hardcover \$35.00.

Western Producer Prairie Books continue to publish superb books, this being one of the most glorious. How is it possible to come up with yet another "coffee-table book"? This one goes far beyond most and it will be treasured by all who get their hands on a copy. Begin with a gifted writer, a person who looks at birds with joy in her heart, but realistically, and with whimsical humor. Then search throughout North America for the most exciting photos available, and voila! a book of revelations, a book that will inspire the most blasé birder or layman. Savage has brought together some of the best and most unusual photos taken by 35 top-notch bird photographers. Many of the photos are full page, all are exceptional, some are instructive. The full page photo of a Great Gray Owl (by Wayne Lankinen) captures the elegant solemnity, the calm, almost disdainful look, the feathery lightness of this imposing bird. It would be difficult

to surpass the photo of the nighthawk at its nest, wings raised over its back, the Audubonesque view of two Black-billed Cuckoos ("a lean, lissome, brown-backed bird gliding among the shadows of the underbrush") at their nest; one bird holds a bristly caterpillar in its bill, a nestling with mouth agape reveals on the roof of its mouth "curious, snow-white disks with roughened surfaces." And where did she find those three stunning Redwing photos?! Blast her — I should have had those for my Redwing book! For the rest of the photos, get a copy of the book and see for yourself what hard work and careful selection can do. You won't be disappointed. These photos will stun, please, surprise and make you yearn for spring and summer and the wonder of birds.

Not an ornithologist, not really a birder, Savage conveys her view of these creatures of flight with uncanny skill (and long, hard work, you may be sure). By carefully reading a lot of material (there are 23 pages of references sorted by species), sifting through it with fresh insight, pouncing upon the unexpected, she brings us new impressions of birds. Not so much their identification as their *identity* — herein lies the value of her sometimes child-like responses to what birds do. She is fascinated by their behavior and while she imbues birds with liveliness, with character and personality, she rarely anthropomorphises. When she describes bird behavior in terms of human antics or values, it is not without some realistic and valuable comparison.

Of owls, she writes: "Creatures of the night and 'owl light,' they fly and hunt with confidence where we could only jitter and stumble about." Of the Kingfisher: "... chances are the bird will see you first. Uttering a harsh rattle of displeasure, it will likely swoop along the water's edge, giving you a chance to notice its distinctive white collar and heavy-headed, touseled silhouette." Of

songbirds: "Yet, mysteriously, we are moved by their beauty [of song]. What, we may wonder, is the basis of the ancient kinship through which we and the songbirds share our interest in pitch, rhythm, dynamics, and other components of melody?"

One can only speculate on the anguish with which the author confronted the task of choosing 55 representative birds out of some 550 that are found in Canada. It is a successful choice, covering birds of 18 major groups or *orders*. It would be interesting to do a survey to see how many "favorite birds" have been included. Behavior, biology and ecology are the three main themes, and these are well covered for every bird order and species. There is a lot of information, some old, some new, all carefully woven together and dealt with in an entertaining and enthusiastic way. It is good reading. Fun, really.

Writer, editor, journalist, musician and now a civil servant, Candace Savage is one of that group of observers of nature who occasionally reach out and gather in a new harvest of seashore, woods, streams and always, birds — and we are the better for it. There is laughter here, hope and inspiration. An exotic combination, born of love of people and wildlife.

Don't, please, discard the dust jacket of this splendid book, else you'll lose a choice photo of a Bohemian Waxwing about to engulf a freshly-plucked crabapple still in mid-air (back cover; the Blue Jay on the front cover is included in the book). Worse, you'll lose a charming photo of the delightful author herself. — Reviewed by *Robert W. Nero*, 546 Coventry Road, Winnipeg, Manitoba. R3R 1B6

MEMBERS VIEWPOINTS

WHOOPING CRANE TOURS

In the beginning of September 1977, four big white crane-like birds accompanied by one slightly smaller brown coloured one landed near a small lake on a farm a few miles north of Neilburg. Word of this "happy event" spread fast through the community. The result was not pleasant for the Whooping Cranes. As soon as they left their resting place to feed in the stubble, they were surrounded by cars and trucks with cameras sticking out of the windows, and had to fly back to the same place at the lake.

Whooping Cranes are not like lions in Africa's National Parks who can eat, sleep (mostly) or do whatever they do surrounded by vehicles. Cranes will never stop on this same place again. The lake is dried up and surrounded by oil wells.

There are fewer and fewer places where Whooping Cranes can stop unmolested on their long migration flight.

Years later, Whooping Cranes north of Battleford were so badly hounded by an American crew, that the land owners finally complained. Those people were free-lance photographers. Land owners have been mostly very co-operative. Some even posted their land for the duration of the cranes' stay. Only one did not want them on his swathed grain for fear that they would attract large flocks of Sandhill Cranes.

The first and only time I have been exposed to commercial crane watching was

one winter in the little town of Rock Port (East Texas, near Corpus Christie). I arrived there by bus and the motel in which I was staying was right on Aransas Bay, a shallow arm of the Gulf of Mexico. There was a tour boat named "The Whooping Crane." It took you, for a substantial amount of money, on a daily tour to see the world famous Whooping Cranes on their wintering ground.

The captain and tour leader was quite a character. Sometimes he sounded like a carnival barker to me.

We saw several pairs of Whooping Cranes, a lot of other shore birds and quite a few white pelicans. The cranes were less wary than on Saskatchewan grain fields. I think this was because they were on their own territory, close to water and the boat had to stay in a dredged channel, not too close to shore.

Halfway on the trip, through my binoculars I spotted a measly little coyote looking at some pelicans on the water. I mentioned it to the guy standing next to me. Word spread like wildfire through the "birdwatchers." The captain stopped the boat and announced through the loudspeaker, "Folks, this way if you want to see a real wolf."

I met a dedicated young couple of American naturalists. They showed me a lot, including the headquarters of Aransas Wildlife Refuge. No commercial Whooping Crane watching there, instead

a high observation tower from which you could look over the immense tidal flats of the Gulf of Mexico.

I spent two summers on canoe trips in Wood Buffalo Park, even flew with the wardens on buffalo counts over a part of the park. We never even got near to the breeding grounds on the Sass river. No Whooping Crane tours there.

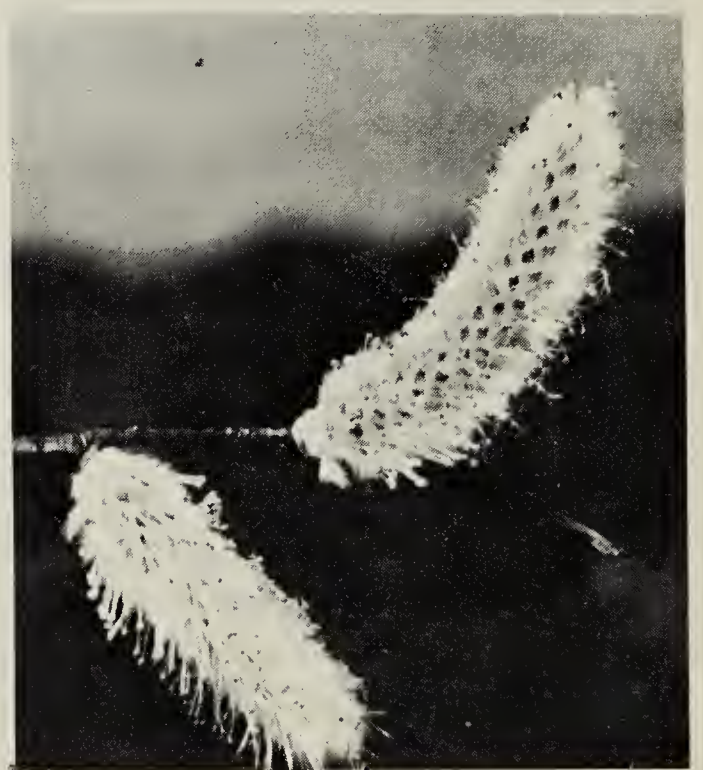
It seems to me that they are most vulnerable during the two or three weeks stop-over period on Saskatchewan's grain fields. There they are exposed to commercial Whooping Crane Tours. No matter how well conducted, there must always be a certain amount of "sneaking up" to get better photos.

Millions of dollars are spent trying to keep the Whooping Cranes with us on this planet. I think that it is, to say the least, "strange" that the SNHS is obtaining revenue from this still very much endangered species. That is my viewpoint. — *Hans de Vogel*, Neilburg, the middle west rural part of Saskatchewan.

NOTE: A pamphlet published for the Whooping Crane Network by National Audubon Society called "*Is it a Whooping Crane?*" contains the following: "**WARNING:** Whooping cranes are easily disturbed, therefore please exercise caution in making observations. It usually is not helpful to publicize their exact location: overzealous photographers and observers can cause the birds to leave an area prematurely."

A TAXONOMIC REMINDER FOR RECOGNIZING SASKATCHEWAN PLANTS

John Hudson's guide for botanists which gives key characters by which closely resembling Saskatchewan species can be separated is still available from the society. It comes with checklists for four sections of the province. The current price is \$8.00 from the **Blue Jay Bookshop, P.O. Box 1121, Regina, Saskatchewan. S4P 3B4**



Willow catkins

R.E. Gehlert

